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JOURNAL *of* EDUCATIONAL RESEARCH

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CRITICAL QUESTIONS FOR THE EVALUATION OF RESEARCH

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THE questions which are presented in the following list are designed to focus attention on the critical points of research. They are intended for the use of the research consumer in evaluating published research, but they may prove equally useful as a check list for one who is undertaking or completing a research project. While the list has been prepared especially for quantitative research, it applies generally, though less specifically, to historical and legal research also.

The questions are centered around the important steps or phases of research work. Other bases of organization could have been chosen, but the present outline was used because it seemed to parallel more naturally the development of a research project as the work is actually carried out. It will, of course, be recognized that several steps may be occurring simultaneously, and that some (such as No. 8) extend throughout the work.

The questions are stated simply, and somewhat broadly. Each of the questions is followed by a brief description which is designed to identify the phase of research that is embraced by the question, and to make clear the import of the question. Following this explanation, a number of smaller, more specific questions are given, or pointed literature is cited. The application of the question is illustrated, in most cases, by material drawn from the field of experimental research in visual education. The general list of questions, in a preliminary form, was employed in the evaluation of forty-nine studies in this field as a test of its completeness and "workability" in actual use.[1]

The list could, of course, be made much more elaborate, each question having a number of subdivisions dealing with the more refined steps of

[1] Hoban, Charles F., Jr. *A Critical Evaluation of the Experimental Literature on Instructional Films*, Doctor's thesis (Durham: Duke University, 1935), Pp. 339. The analysis and evaluation of each of the forty-nine studies will be found in this thesis.

research. It is believed, however, that the present list of general questions will be of service, partly because of its simplicity and directness. There is no attempt in the present paper to devise a complete score card for research. It may be appropriate at a later time to develop a more refined scale with weights for more minute phases of research—although there are obvious difficulties in such an undertaking because the smaller steps of research are not universal, but rapidly become unique to a particular type of research and to a particular field of problems as attention is shifted to the more detailed processes. For the same reason, a constant set of weights seems unjustifiable.

The list of questions was derived analytically; it is not represented as being substantiated by pooled judgments or by any other kind of research, beyond the simple tryout referred to. It must rest on its own merits. The authors will be pleased to receive criticisms from those who put the list to practical use.

The ten questions which are regarded as covering the most critical phases in research, and which form the outline of this paper, are as follows:

1. How significant is the problem?
2. How appropriate is the general plan of attack?
3. How crucial are the factors selected for study?
4. How typical are the conditions?
5. How representative are the cases?
6. How valid are the measurements?
7. How satisfactory is the analysis of the data?
8. How completely are the assumptions recognized and stated?
9. How sound are the conclusions?
10. How well is the report prepared?

These questions will be considered in order.

1. *How significant is the problem?*—This question is concerned with the contribution which the study might make, either to educational or psychological theory, or to the improvement of field practice, if the study were superbly executed. In judging this characteristic of a completed research, one will ignore the value of the study as actually carried out; one is here concerned only with the value of the problem being studied. The importance of a problem at any time will depend in part upon the conclusiveness of previous work that has been done on this problem, or on a problem closely related to it. One may well ask, "How much would the *solution* of this problem add to the advancement of knowledge?"

It will be noted, contrariwise, that this question does not bear upon the quality of the work in the study; this is covered by other questions in this list. The importance of a problem is, however, a significant element in the evaluation of a research study as a whole. It is a fundamental element in the contribution which the study can make. In the event that a problem is poorly stated, perhaps not being properly delimited, or perhaps not being accurately stated, one should consider the problem that was evidently intended, as may be inferred from the work that was actually done. The penalty for a poor statement of the problem may be made in evaluating the report of the study (Question 10), the conclusions (Question 9) if they extend to a problem not actually worked on, and the eruciality of the factors (Question 2) if they do not bear upon the problem which the research is represented as dealing with.

One will find help in evaluating the significance of a problem by consulting a recent discussion written by Good,[2] in which various criteria are considered. We may illustrate the element of timeliness in determining the value of a problem by noting that the tuitional value of motion pictures was an important problem back about 1922, when Weber (7) made his study. If a similar study were undertaken at the present time for the simple purpose of ascertaining whether children would get value received for time spent in viewing an instructional film, the problem would not be considered as important. The answer is already well known. Other variables would have to be introduced to make the problem significant.

One may, of course, evaluate problems from other angles than their contribution to the existing state of knowledge; for certain purposes, one might, for example, evaluate a problem as to its appropriateness for a Master's or Doctor's thesis.

2. *How appropriate is the general plan of attack?* This question is largely concerned with what may be called the *type* of research which is undertaken, and the potency of this particular type in affording conclusive evidence on the problem. There are a number of well defined types of research,[3] and each one of them has its proper field of service.

[2] "Selecting, Stating, and Defining the Problem," pp. 68-88, in: Good, Carter V., Barr, A. S., Scates, Douglas E., *The Methodology of Educational Research.* (New York: D. Appleton-Century Co., 1936), Pp. 882.

[3] Good, Barr, and Scates (*op. cit.*, pp. 221-32) recognize four principal types or methods: (1) historical (including legal), (2) normative-survey, (3) experimental, and (4) quantitative multiple-causation analysis, which includes the four subclasses, causal-comparative, correlation, case-study, and genetic research. Other classification schemes are presented in the preceding pages of this same chapter.

For example, we should not expect the normative-survey type of research to yield rigorous data on causes; nor would we expect the experimental method to yield information as to prevailing conditions or practices. This question, then, is concerned with the underlying logic of the method: Will the procedure which is adopted yield a rigorous answer to the problem?

This question, however, has another aspect which must be considered. After having adopted a type of research that is logically appropriate, one must see that the details for the execution of this plan are properly worked out. For example, one may have selected the experimental method as the appropriate one for his problem, and may subsequently render his study of little or no value by failing to establish controls that are effective. In planning the detailed execution of the method, one must consider the practical conditions under which the study will be carried out. In other words, the plan must be workable, or it is not satisfactory.

As an example of experimental procedure which broke down under actual field conditions, we may cite the study of Wood and Freeman (8). (The shortcomings of the work are carefully pointed out by the investigators themselves.) Their investigation included 11,000 children in more than 300 classes, and taught by nearly 200 different teachers, in grades 4 to 9. The large number of stations, which were employed, in order to balance out the possible spurious elements of a few locations, rendered it impossible for the investigators to keep in close contact with the work. Consequently, conditions could not be kept uniform, either in the experimental or in the control groups. For instance, in one school, keen rivalry developed between the control and experimental teachers. In many schools, visual aids other than those contemplated in the experiment were made use of. In still other cases, teachers were so unfamiliar with the technique of using motion picture films in the classroom that exaggerated conditions resulted. While, therefore, the experimental procedure was logically indicated for the attack on this problem, it could not be well carried out because of its inappropriateness to the conditions that existed in the field.

3. *How crucial are the factors selected for study?*—After the attack has been planned attention must be given to the factors which it is proposed to study. The general problem, carefully stated and delimited, must be broken up still further into variables which can be handled. The question becomes, How shall each phase of the problem be represented?

The need for selection of factors is likely to arise when one is working

with a problem involving general or complex aspects, such, for example, as any of the following: ability, growth or progress, quality or merit, other forms of value, efficiency, adaptation, appropriateness, interest, significance, honesty, healthiness, leadership, family stability, and the like. The need for selection of factors is likely to be present in any study of the causal-comparative type, which seeks to ascertain the causes of some observed condition. In this case, one should study as many of the factors which are likely to prove significant, as he can. In historical work, one must lay out the subdivisions or aspects of his problem, determining upon what ones will be included and what ones will be excluded. The question he should ask is, Will the various aspects selected, when taken together, yield a complete picture of the problem?

It should be noted, on the other hand, that there may be research problems in which this step is unimportant. The statement of the problem may be in such narrow terms that no further selection or refinement is called for. This step is, therefore, not invariably present in research studies, but where it does occur, the decisions which are made are of fundamental consequence.

The questions to be concerned with will vary with the circumstance, but are essentially of three types. First, are the factors vital? That is, do they go to the heart of the problem to be solved? Do they bear a cause-effect relationship to the problem variable? Are they "saturated" with the elements of the problem. Second, are the factors of the proper breadth? Are they so large that they include too many spurious elements, or so narrow that they exclude essential elements? Is one satisfied with an atomistic concept of the problem, or does this include too many of the elements of pattern or structure in the interrelation of these detailed variables? Third, are there enough factors included? Will they, when taken together, afford a rigorous answer to the question represented by the problem? Are there other factors omitted that might prove significant if studied? Factors not infrequently overlooked are such as age, grade placement, sex, I.Q., geographical location, size, etc. Answers to these three principal questions will largely provide an answer to the basic question in experimental research: What factors should be controlled and what factors should be permitted to vary?

We may illustrate the selection of factors from a study by Knowlton and Tilton (3). These workers studied the effect of instructional pictures on enrichment of learning, interest in the topic, and retention of learning, in the field of history. The three elements named were recognized in their

problem. In order to study the first one, enrichment, they used the following four factors: (a) knowledge of time, (b) knowledge of historical geography, (c) knowledge of persons, and (d) knowledge of interaction of event, or causal relationships. To study the second part of their problem, interest, they chose the following four factors: (a) pupil participation in classroom discussion, (b) the rank of history in the pupils' choices of subjects of study, (c) pupils' voluntary reading in the classroom, and (d) pupils' voluntary reading of history outside the classroom. The third element of their problem, retention, was not broken up into factors; it was indexed by repeating tests after different lengths of time.

Factors which were selected to be held constant by Knowlton and Tilton included: (a) teachers, (b) media of instruction (except for motion pictures, which was the experimental factor), (c) intelligence of the pupils, and (d) grade level.

The steps represented by this third question may be considered as a continuation of the process begun when the general field in which the problem lies was narrowed to a specific problem limited enough to be attacked as a single unit of research. Its emphasis is, however, likely to be on representation, rather than on delimitation, though both elements are involved. Nor does the process of delection end with this present step; it is continued in other aspects and into more refined levels, as represented by Questions 4, 5, 6, and, in some cases, 7. It may be thought of as continued into the remaining questions also. Research is, in large part, a matter of successive differentiation and delimitation, more commonly denoted as "analysis."

4. *How typical are the conditions?*—This question relates to the conditions under which the data are gathered—or, perhaps more properly, to the factors that have been operating to produce the data which are observed. In other words, what factors are actually reflected in the data, and what conditions are these typical of?

Ordinarily, the conclusions of studies are generalized, and the findings are taken as being appropriate to other areas than the one studied. For any research that is designed to throw light on practical conditions, it becomes of importance to have the data reflect those factors that are present under ordinary circumstances. More generally, it is essential that the factors which condition the data shall be typical of other areas to which the findings of this study might be applied except as specifically excluded by statements in the conclusions. That is, for example, if a study is based on children of the fifth grade only, this fact should be

prominent in the conclusions that are stated. Whatever factors there are that are peculiar to the source from which the data were gathered should be noted, and made a part of the conclusions, or apart from such notation, the research consumer has a right to expect that the data will be typical of other areas that appear on the surface to be the same.

One must, therefore, examine his source-field critically and minutely for possible spurious elements. Not only so, but he must examine it to see that it is properly delimited—not so large as to encourage the operation of undesirable elements, and not so narrow as to restrict the range of variation of the important factors. Is a large enough age range used? A long enough time? Do the essential conditions vary sufficiently? Are other conditions such that the normal interplay of factors is permitted, at least within the limits specified in the study? That is, is the experimental factor properly integrated with the other factors in a functional way, or is it an isolated factor just "added to" the other conditions in a mechanical way?

In the case of historical work, this question relates to the sources of information used. Do the libraries which one uses reflect a proper balance of elements in the situation being studied? Are they adequate, or will they lack information which he should have? Are they biased, reflecting local interests and prejudices? In normative-survey work, much the same questions are raised; does the source-field reflect in a proper way the conditions that are likely to be contemplated as obtaining when one thinks of the natural setting of the problem being studied? In experimental work, are the conditions kept as normal as possible, considering the limitations required? In multiple-causation analysis, one must look at the source of his data from the same angle.

In experiments on visual education, for example, one would not be justified in drawing general conclusions for children at large if his experiment were conducted with children who were definitely above or below normal mentally, above or below the average in socio-economic status, physically handicapped, in smaller or larger classes than usual, taught by markedly superior or inferior teachers, etc. Special experiments which sought the effect of such factors as these would be desirable; but no experiment should be conducted with any of these factors operating without a definite statement to this effect in the description and in the conclusions of the study. The same requirement is equally obligatory on all other kinds of research.

As an example of the *controllable* or manipulated factors within the

source-fields, we may cite Rulon's study (5), in which both textbooks and motion pictures were especially constructed for the experiment, so that the contribution of these factors might be definitely controlled, and spurious elements avoided insofar as possible.

5. *How representative are the cases?*—Having assured oneself that the source-field from which one draws his data is typical of the conditions that a reader would normally assume from a description of the procedure, one must see that the actual data which he secures (observes) are representative of this field. If the preceding steps have been well taken care of, one will usually seek to secure a set of data that reflect as fully as possible the range of operation of the variables which are being studied, within the limits established for the source-field. There are special cases, however, in which it is necessary to set additional limitations within the source-field, which further restrict the range of certain variables; when such special conditions are appropriate, they must be recognized and adhered to.

In the field of statistics, this phase of the work is known as "sampling." There is a definite statistical theory which makes an average allowance for chance variations in the results when the observations are taken strictly at random throughout the source-field and certain other conditions are assumed to exist. This allowance is designated as standard error, or probable error. On the other hand, it must be kept in mind that there is no way of estimating the amount of error involved when the source-field itself is not typical (Question 4). It is desirable that standard or probable errors be attached to the statistical constants which are calculated, but, in addition, one must examine the research for proper selection and delimitation of the field itself, and for lack of bias in the selection of cases from the field.

Selective factors are subtle and potently perversive. The statistical criterion is: Has each case in the source-field an equally likely chance of being observed? There are, however, other tests; the principal point is to get a representative sample, and one should look for elements in the research procedure which will favor or hinder this result. In this connection, one must also consider the size of the sample which he is taking; the larger the sample, other things being equal, the more representative it will be.

Whether a given level of selection comes under Question 4 or under Question 5 depends upon the limits of the particular study. Thus, the schools of a certain city may be chosen as the source-field for a study;

the city schools might be typical of city schools in general, but the observing of the pupils from only the better schools of that city would not yield a set of data that were representative of the city—and hence, they would not be representative of city school systems in general. On the other hand, one may be avowedly studying only the better schools, in which case they would constitute the source-field, and the problem of selection within this field would apply only to the particular schools or to the pupils in these schools that were chosen to represent the "better schools."

This general problem of differentiation and selection, began when the problem was initially conceived, and continued through the delimitation of the problem, the selection of aspects for study, etc., is a hierarchical process, carried on through all the levels of research analysis. It is to be regarded as continuing through Questions 6 and 7, and possibly through the remaining three.

6. *How valid are the measurements?*—Validity, as a somewhat formal concept, is a topic that is familiar in the field of educational measurement. It is concerned with the extent to which the operation of a factor is reflected in the variations in the data. That is, does every difference between two numbers (two data) represent a difference of the proper amount in the factor that is being measured? Or, does this difference between two data represent in large part variation in a lot of other factors than the one being studied? We thus speak of the extent to which a measurement is "saturated" with the factors which it is expected to represent. While this concept is simple in the abstract, it is the source of the greatest difficulty in practice.

The validity of the measurements depends, in large part, upon the instrument used for observing them. Thus, a particular test may or may not be a highly valid measure of the factors it is used to record. Validity also depends upon the procedure which one follows when using any instrument; it is possible to spoil any measurements by not knowing the proper technique of using the instrument.

The appropriateness of the measuring instruments is a crucial matter in all quantitative research. By the use of a certain instrument (perhaps a schedule of questions or other forms of observation) one gathers evidence which leads him to conclude that a certain proposition is or is not true. If this instrument is not trustworthy *for his particular purpose*, then his conclusions are not trustworthy. While such errors seem particularly pernicious in the case of experimental work, they are just as

truly ruinous in normative-survey and multiple-causation analysis. This phase of the work shares with the steps represented by Questions 3, 4, and 5, the responsibility for procuring data which are, within the limits of the research method, conclusive with respect to the problem under investigation.

We may note illustrations of questionable validity among some of the visual education experiments. For example, Arnspiger (1) studied the effectiveness of sound pictures in the teaching of music. While music was reproduced in the pictures, the tests used were all verbal, which do not afford a valid measure of many aspects of auditory music. This is, in part, a matter of poor selection of factors to be studied (Question 3) as an index of "effectiveness" of the pictures, but it is also in part a matter of questionable validity of the measurements: the tests were used as measures of factors with which they were saturated to an unsatisfactory degree. On the other hand, in an experiment by Rulon (5), the sound effects of the motion pictures which were used were not critical elements, consisting only of verbal explanations of the film. His tests included both pictorial and verbal elements, which were well fitted (because of this fact and because of further care exercised in their construction) for reflecting the contributions made by the sound motion pictures.

7. *How satisfactory is the analysis of the data?*—At this point we assume that the data represent, as far as possible, the factors one desires to study, and our responsibility is to "extract" the evidence from the data. This process is, in general, one of amassing the evidence in the various individual measurements to see what they tell in the aggregate. Allowance must also be made for the likelihood that the measures are not strictly valid, or that the cases are not directly representative. In quantitative research, this process is embraced by the field of statistics, and the process may become highly technical. For such work, there are well defined criteria in the realm of statistical thinking, and no attempt will be made to state them here. One must be familiar with them if he is to pass upon the technical phases of quantitative analysis. In the case of historical work, again there are well defined procedures which are known to those trained in historical research. Internal and external criticism are called for. One must have an understanding of these techniques before he can pass upon them.

As somewhat general criteria for analysis, we may raise certain questions about the analysis. Does the work appear to be done with care and

with competency? Does the analysis reveal the aspects of the data that are necessary to answer the problem question? Does the analysis secure all of the aspects of the data that might prove interesting and valuable? Are the influences of subtle factors revealed, where possible? Does the analysis have perspective, so that the essential questions are not lost in a multitude of minor issues?

Some studies depend more upon a refined and searching analysis of the data than do others. What is appropriate must be decided largely in the light of the purpose of the study. Two examples of elaborate analysis of data may be cited in the field of motion picture experiments. Davis (2) analyzed the responses secured by the Wood and Freeman study (8), starting with a check-list for the evaluation of essay test responses, and covering the several different aspects of the study. Terry (6) analyzed stenographic reports of lessons in connection with the Knowlton and Tilton study (3). She was interested in the elements of films that pupils respond to. For details of these analyses, the original reports must be consulted.

8. *How completely are the assumptions recognized and stated?*—We are concerned here with a subtle element of research—but nevertheless an important one. Many research findings have been entirely discredited by subsequent studies that avoided the assumptions on which the earlier works were founded; assumptions underlie each of the steps that are taken in research, such as selecting factors for study, choosing the source-field, etc. It is too much to expect that one list *all* of his assumptions, for they quickly run into the field of metaphysics. One should, however, list those assumptions that are implicit in his work, which are not, at the same time, common to all contemporaneous research of the same type.

The assumptions that underlie one's work constitute part of the limitations of his work, and should be stated, not only in the description of the procedure, but also in connection with the conclusions. They are, in fact, an integral part of the conclusions.

This topic will not be further developed here, as it is already covered in the literature.[4] We may, however, point out that the making of un-

[4] Three articles that deal specifically with assumptions in educational research are:

Scates, Douglas E. "Types of Assumptions in Educational Research," *Journal of Educational Psychology*, XXVI (May, 1935), 350-66.

Tyler, Ralph W. "Assumptions Involved in Achievement-Test Construction," *Educational Research Bulletin*, XII (February 8, 1933), 29-36. Also reprinted in his *Constructing Achievement Tests*, pp. 58-66. (Columbus, Ohio: Bureau of Educational Research, Ohio State University, 1934), Pp. 102.

Hendrickson, Gordon. "Some Assumptions Involved in Personality Measurement," *Journal of Experimental Education*, II (March, 1934), 243-9.

sound assumptions is probably a significant factor in accounting for differences in the findings of various studies dealing with the same problem. Thus, Mead (4), some years ago, conducted an experiment on the value of motion pictures in the classroom, and found a much lower value than other studies have. His unusual results may have been due to various unjustified assumptions implicit (though ignored) in his work. One who is examining research critically can often detect questionable assumptions that underlie the procedure.

9. *How sound are the conclusions?*—The interpretation of the findings and the drawing of conclusions represent one of the most important and, at the same time, one of the most precarious steps in research. The conclusions do not follow automatically upon the completion of the analysis; the process of deriving them calls for careful thought, and is primarily subjective. It is in a sense the reverse of the early steps in research, in which one endeavored to set up conditions so as to yield a needed answer; one now examines his data to see what answer they give.

In doing this, it is necessary that one recognize all of the important factors that enter in to produce data observed. Whatever opportunities were left for extraneous factors to play upon the cases by the procedures adopted for the study must now be recognized, and the possibilities for error arising therefrom must be considered. The factors may not represent the problem well, the conditions in the source-field may not be generally typical, the cases may not be representative, the measurements may not be valid, the analysis may not be accurate. In the long process of hierarchical representation that is involved in research, it is possible for one to get further and further away from the problem he started out to study.

By way of specific questions, we may note the following: do the conclusions represent logical deductions from the data? Are they limited to what the data actually show? Do they recognize appropriately the possibilities for lack of fidelity in the various steps of representation? Are selective factors given special consideration? Is due allowance made for statistical sampling errors? Are the conclusions made contingent upon the various implicit or explicit assumptions? Do the conclusions list all of the known or suspected factors that might vitiate the results—i. e., make them special or unique to the particular study, or perhaps prevent their answering the problem even for the source-field used? Finally, do the conclusions contain suggestions as to the practical significance and the possible applications of the results of this study?

Lack of rigor in the drawing of conclusions appears to be more common than does appropriate care. Deficiencies are commonplace; for illustrations, most of the examples cited previously will serve, and further examples need not be given here.[5]

10. *How well is the report prepared?*—This step, like the first one, does not have any bearing upon the quality of the research work itself, but it is nevertheless an aspect of large significance in reported research. Probably any research worker would grant that he is not engaged in his task just for his own contentment; he hopes to make findings that will be of value to others. If his studies are to achieve this purpose, they must be properly written up—for that is ordinarily the only medium through which other scientists and research consumers may benefit from his work. The quality *of the report is,* therefore, a definite part of the contribution which a worker makes.

Standards for the presentation of reports are now well codified, and fairly numerous.[6] Details will not, therefore, be mentioned here. We may, however, list a few leading questions: Is the problem definitely and clearly stated so that there is no ambiguity about the purpose of the research? Can the reader follow in detail the steps which the worker took, from the beginning of the study to the end of the analysis? Is the reason for, or the significance of, each step made clear? Are enough of the minutiae of the circumstances given so that the reader can obtain some evidence as to the appropriateness of everything that was done? Does the report suggest technical competence and meticulous care so that the reader is led to have confidence in the work? Are the mechanics of presentation (tables, diagrams, footnotes, bibliography, etc.,) reasonably in accordance with conventions? Is the report coherent and readable for the average person in the group who would receive most benefit from reading it?

If the foregoing list is used in the evaluation of completed research, it may be helpful to record one's judgment on each of the ten aspects in terms of some quality rating, such as "unusually good," "average," etc. It does not seem advisable to the authors—at least at present—to attempt to attach a certain number of points to each question and arrive at a total "score." One may of course do so for his own satisfaction, if his

[5] The difficulties and dangers of interpretation and drawing conclusions, together with illustrations, are treated in Good, Barr, and Scates, *op. cit.*, pp. 617-47.

[6] *Ibid.*, Chap. XIII, "The Preparation of the Research Report," pp. 648-78; see also Chap. XIV. Practically all of the pertinent literature in this field is summarized or cited.

purpose is not served by the analytical quality rating on each of the ten aspects.

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THE RELATION OF BILINGUALISM TO VERBAL INTELLIGENCE AND SCHOOL ADJUSTMENT

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AN ESTIMATE OF THE PROPORTION OF BILINGUISTS IN THE SCHOOL POPULATION OF THE UNITED STATES

THE term "bilinguist" is used in this article to designate a person who was born and brought up in a family where two languages are used interchangeably. This situation obtains in families of more recent immigrants where the native language of the immigrant is used together with English. A child's bilingualism in this instance comprises the understanding or the speaking, and more usually both aspects, of the two languages involved. No reference is made here to the acquisition or possible use of a second language learned at school by a unilingual child.

According to the Fifteenth Census of the United States (2) the total number of pupils between ages 5 and 20 attending school in 1930 was 26,849,639. Of this number 19,765,418 or 75 percent consisting of 17,288,107 white and 2,447,311 negro pupils were native-born of native parentage and may safely be assumed, within perhaps a negligible margin of error, to have been unilingual. The remaining 7,084,221 or 25 percent of the total school population consisted of 6,291,273 native-born boys and girls of foreign or mixed parentage, 389,749 foreign-born, and 403,199 pupils of colored races other than negro. In the light of the findings of Jordan (5) and Arsenian (1) pupils in the first group, with the exception of those whose parents came to America from English-speaking countries, should be considered to have been bilingual. The pupils born abroad, with the exception again of those born in English-speaking homes, were quite naturally bilingual. The children of the Mexicans, the Chinese, the Japanese, etc. included in the third category may also be considered as bilingual, because these groups are usually segregated from the surrounding English-speaking population. On the basis of the classification just described approximately 25 percent of the school population of this country was bilingual in 1930, and it is not likely that this situation has changed essentially since then.

A more detailed examination of the census figures will indicate also that the number of bilinguists in the school population is larger in three of the New England states; in the Middle Atlantic and East North Central states; and in California than in the Mountain or the Southern

states. It is larger again in metropolitan cities and industrial areas than in rural sections.

THE PROBLEM OF BILINGUALISM

The presence and distribution of bilingualism in the school population of this country are of interest because of many problems connected with bilingualism which have more recently come to the attention of psychologists and educators both in this country and abroad.

Various advantages and disadvantages have been attributed to bilingualism. Some claim that bilingualism retards mental development, that it hampers school progress and impedes seriously the flow of thought and speech. Others maintain that bilingualism per se has no influence on the growth of intelligence and other handicaps attributed to it can be explained on the basis of factors other than bilingualism. With regard to the development of personality there again are to be found two divergent opinions—some hold that the bilinguist through his early and immature contact with two languages and cultures is not sufficiently at home in either and that this deficiency leads to a feeling of inadequacy, insecurity and inferiority. The opponents of this thesis maintain that the contact with two languages and cultures is a valuable advantage which the bilingual person has over the unilingual since it contributes to the formation of a more tolerant, and world-minded individuality, appreciative of the contributions of other national cultures. An extensive survey of the literature in the field of bilingualism is presented by one of the writers elsewhere (1) and it will not therefore be necessary to review it here.

THE LOCUS AND LIMITS OF THE PRESENT INVESTIGATION

The present investigation is concerned with the relationship of bilingualism to verbal intelligence and school adjustment of 469 Jewish children, all native-born and coming from the same metropolitan neighborhood. At the time of the experiment these children were in the sixth and the seventh grades of Public School No. 16, Brooklyn, New York. The bilingualism of these children, be it noted, starts from infancy. Because of their particular environment they are placed in a position to hear and to respond interchangeably in the Yiddish and the English languages. The elder members of their families, born abroad for the most part, prefer the use of the Yiddish language—for some of them that is the only language known while the younger members, exposed more to the influences of this country, find it easier to express themselves in

the English language. Outside of the home these children are partly exposed to Yiddish, since the neighborhood where they live is predominantly Jewish and Yiddish is often spoken in the street and the stores. Some of these children, after the regular school hours, attend the Jewish parochial school where they learn the Hebrew language. The influence of the English language is non-the-less dominant. It is the language of the school. In that language the children find many more attractive books to read and stories to tell. In the cinema English is the language they hear. In the summer camp and in so many of the multitudinous contacts of their daily life their access to the surrounding world is more through the channel of the English than the Yiddish language. There is no affective dislike against the English language; it is realized by young and old alike that advancement in social and economic status is through that medium. Yiddish or Hebrew is there merely because the older people do not know the new language well enough, or is there because it is consciously forced or fostered by a certain loyalty to a cultural patriotism.

Languages, unless already dead, cannot be adequately considered without the people which use them and the environment in which they exist. The writers consider it important that in any discussion of bilingualism its socio-psychological environment be stated, for affective elements are necessarily connected with languages and the influences emanating from this source most probably bear relation to the resultants of bilingualism.

BILINGUALISM AND VERBAL INTELLIGENCE

The Hoffman Bilingual Schedule (4) was used for the measurement of bilingual status. The Schedule consists of 14 questions including altogether 37 items purporting to determine the extent of the bilingual background of the child. Not only the "expressive," or speaking, but also the "impressive" or the hearing and reading aspects of the child's language situation are taken into account. Hoffman reports (4) validity coefficients of .73 and .82 and reliability coefficients of .81 and .92 for the Schedule.

For the measurement of intelligence the Pintner Intelligence Test, Form A, was used (7). This is a group intelligence test of the verbal type suitable for school children in grades IV to VIII inclusive. It is not a speed test, the time limits for each sub-test being generous. It consists of eight sub-tests, as follows: 1. Vocabulary, 2. Logical Selection, 3. Arithmetic Reasoning, 4. Best Answer, 5. Number Sequence, 6. Classification,

7. Opposites, 8. Analogies. The validity of the test computed by means of correlations between this and such well known group intelligence tests as the National Intelligence Test, the Pintner Rapid Survey, and the Terman Group Test ranges from .743 to .853. The reliability coefficient obtained by correlating Forms A and B is .865 for grade 6, and .751 for grade 7.

The age range of the population tested was from 121 to 180 months with 90 percent between 131 and 160 months of age. The Pearson Product-Moment coefficient of correlation in this population between bilingualism measured by the Hoffman Schedule and the raw score on the Pintner Intelligence Test was —.059 with a Probable Error of .031. When by means of the partial correlation technique the age factor is held constant the correlation remains unchanged. When the factor of the socio-economic status is held constant by the same technique the correlation between the bilingual status and the intelligence scores is reduced to a coefficient of —.029. (The socio-economic status was measured by an adapted form of the Sims Socio-Economic Score Card described elsewhere (1).)

Careful examination of the correlation chart and actual calculation of correlation-ratios and their check by Woo's Tables (11) indicated that the use of the Pearson Product-Moment correlation coefficient to measure the association between the two variables was justified.

To further check the result obtained by the correlation technique high and low bilinguists comprising approximately 20 percent of the population at either end of the Hoffman Bilingual Schedule were compared with regard to their ratings on the Pintner Intelligence Test. In the high bilingual group were placed children with bilingual scores of 18 to 35—representing the upper range of scores on the Bilingual Schedule; and in the low bilingual group were placed those who had bilingual scores of 6 or below—representing the scores at the lower end of the Schedule. The two groups were matched on the basis of socio-economic status in order to hold this factor constant in the comparison on intelligence ratings. The results are presented in the following table:

COMPARISON OF HIGH AND LOW BILINGUAL GROUPS ON PINTNER INTELLIGENCE TEST I. Q.

HIGH BILINGUAL GROUP						LOW BILINGUAL GROUP						BOTH GROUPS		
Sex	No.	Aver. Bil. Score	Pintner Intell. Test Mean	σ	σaver.	Sex	No.	Aver. Bil. Score	Pintner Intell. Test Mean	σ	σaver.	σDiff.	Diff.	Diff / σDiff.
Boys	36	22.16	106.67	15.40	2.57	Boys	36	3.56	105.83	21.80	3.63	4.45	.84	.18
Girls	55	23.40	98.64	19.40	2.62	Girls	55	3.53	102.45	20.80	2.80	3.83	3.81	.995
Total	91	22.91	101.80	18.26	1.91	Total	91	3.54	103.80	21.27	2.23	2.94	2.—	.68

It will be noted at once that while the average I.Q. of the high bilingual girls is 3.81 points lower than that of the low bilingual girls, the situation is reversed among the boys where the average I.Q. of the high bilingual group is slightly higher than that of the low bilingual group. However, in both groups, separately or combined, the differences in the means are not statistically significant.

The two groups just described were also compared on their I.Q. ratings on the Pintner Non-Language Test, the results of this test being available in connection with another investigation. It is of interest to note that in this comparison, as indicated in the accompanying table, the differences in the average intelligence ratings of the two groups while in the same general direction are less than in the previous comparison on the verbal test.

COMPARISON OF HIGH AND LOW BILINGUAL GROUPS ON PINTNER NON-LANGUAGE INTELLIGENCE TEST I.Q.

HIGH BILINGUAL GROUP						LOW BILINGUAL GROUP						BOTH GROUPS		
Sex	No.	Aver. Bil. Score	Pintner Non-Lang. Test Mean	σ	σaver.	Sex	No.	Aver. Bil. Score	Pintner Non-Lang. Test Mean	σ	σaver.	σDiff.	Diff.	Diff. / σDiff.
Boys	36	22.16	106.11	20.80	3.47	Boys	36	3.56	105.55	18.40	3.07	4.63	.56	.12
Girls	55	23.40	99.55	16.50	2.22	Girls	55	3.53	101.73	16.75	2.26	3.17	2.19	.69
Total	91	22.91	102.14	18.59	1.95	Total	91	3.54	102.80	17.46	1.83	2.67	.66	.25

On the basis of these results it is apparent that insofar as this population and the tests used are concerned the association between bilingualism and intelligence is practically zero, and the differences in I.Q. on both verbal and non-language intelligence tests of high and low bilingual groups are statistically insignificant. This result is in general conformity with that of Murdoch, Maddow and Berg (6) and Schiller (10) who used certain other measures of bilingualism and verbal intelligence tests. It should be remarked, however, that in all the three instances the population used was exclusively Jewish, and it should be recalled that Jewish children have generally ranked high in verbal intelligence tests. Our results indicate therefore that Jewish bilingual children of the sixth and seventh grades born in this country have acquired the English language sufficiently well not to be handicappel in their performance in a group verbal intelligence test of the usual type.

Before concluding this section it should be added that in other populations, particularly non-Jewish and in younger ages, it is possible that a higher negative relationship between bilingual status and *verbal* intelli-

gence may exist. Certain studies such as the ones by Grabo (3) and Sanchez (9) indicate that bilingual Italian and Mexican children in comparison with unilingual children are deficient in the extent of their knowledge of the English vocabulary and this may well express itself by lower scores on verbal intelligence tests. The writers maintain that for the determination of the intelligence of bilingual children non-language tests be used whenever adequate tests of this type can be found.

BILINGUALISM AND SCHOOL ADJUSTMENT

As a measure of school adjustment the Pupil Portraits test, Form A, was used. Pupil Portraits prepared by Pintner, Maller, Forlano and Axelrod is a questionnaire including 100 items in all and divided into five parts. Part I, including items 1 to 15, purports to measure the adjustment of the pupil to the general school environment; Part II, including items 16 to 31, refers to the behavior and attitudes of the pupil toward the teacher; Part III, consisting of items 32 to 51, considers the pupil's relationship with his classmates; Part IV, consisting of items 52 to 73 gives self-estimates of personal and emotional adjustment; and Part V, including items 74 to 100, deals with the relationship of the child toward his parents, brothers, and sisters. The reliability of the questionnaire is reported to be .85 in a population of 115 in grades 6 to 8, and .92 in another population of 130 in grades 5 to 7. A description of this test and some results are reported in detail elsewhere (8).

The authors of the Pupil Portraits report (8) the following tentative norms for boys and girls on Form A of the test:

	Number	Upper Quartile	Median	Lower Quartile
Boys	296	92	86.8	78.4
Girls	460	94.2	89.3	82.3
Total	756	93.3	88.3	80.8

It will be of interest to compare with the norms just given the standing on Form A of the Pupil Portraits of the bilingual boys and girls in the present study. The results are as follows:

	Number	Upper Quartile	Median	Lower Quartile
Boys	219	91.36	86.525	81.10
Girls	250	94.57	91.25	85.75
Total	469	93.55	88.95	83.

It will be seen at once that the results are similar in both cases with the exception of Q1 which is slightly higher for these bilingual boys and girls as compared with the norms.

The average score of the girls is higher on the Pupil Portraits than that of the boys, and this difference is statistically significant in agreement with the results obtained by the authors of the test. The figures are as follows:

Sex	Number	Mean	σ	$\sigma_{average}$	$\sigma_{Diff.}$	Diff.	$\frac{Diff.}{\sigma_{Diff.}}$
Boys	219	85.46	8.50	.5745	.811	3.96	4.88
Girls	250	89.42	9.05	.5724			

Whether bilingualism has any influence on school adjustment or not should be apparent from a comparison of the ratings on the adjustment questionnaire of high and low bilingual groups. For if bilinguilism is a cause of school maladjustment, then children with high bilingual background, and therefore under the influence of bilingualism to a greater degree, should show more maladjustment than children with low bilingual background in whose case the influence of bilingualism was much less. On the basis of this assumption the high and low bilingual groups described earlier in this article were compared as to their ratings on the Pupil Portraits. In view of the difference in the performance on this test of the sexes, high and low bilingual boys and high and low bilingual girls were compared separately. The groups were equated on socio-economic status. The results are as follows:

COMPARISON OF HIGH AND LOW BILINGUAL GROUPS ON THE PUPIL PORTRAITS TEST

HIGH BILINGUAL GROUP						LOW BILINGUAL GROUP						BOTH GROUPS		
Group	No.	Aver. Bil. Score	Pupil Portraits			Group	No.	Aver. Bil. Score	Pupil Portraits			$\sigma_{Diff.}$	Diff.	$\frac{Diff.}{\sigma_{Diff.}}$
			Mean	σ	$\sigma_{aver.}$				Mean	σ	$\sigma_{aver.}$			
Boys	36	22.16	85.83	6.85	1.14	Boys	36	3.56	86.11	7.60	1.26	1.70	.28	.16
Girls	55	23.40	87.86	7.85	1.06	Girls	55	3.53	90.50	8.50	1.15	1.56	.93	.60
Total	91	22.91	87.17	7.55	.79	Total	91	3.54	88.70	8.45	.89	1.62	1.53	.95

It is apparent that no differences of any consequence or of a statistical significance exist between the ratings on the Pupil Portraits test between high and low bilingual boys, between high and low bilingual girls, or between high and low bilingual groups with the sexes combined.

In order to investigate further the relation, if any, of bilingual background to school adjustment, the bilingual scores of the 469 pupils were correlated against the ratings on the Pupil Portraits. The coefficients are as follows:

between bilingual score and	r	P.E.
Part I (Pupil-School)	−.0142	.031
Part II (Pupil-Teacher)	−.0004	.031
Part III (Pupil-Pupil)	−.0940	.030
Part IV (Pupil-Self)	−.050	.031
Part V (Pupil-Family)	−.066	.030
Total Test	−.075	.030

These results indicate that to the extent that the Pupil Portraits represent the pupil's adjustment to school, teacher, other pupils, self, and family, bilingualism measured by the Hoffman Schedule presents no handicap.

SUMMARY

On the basis of the figures given in the Fifteenth Census of the United States it is estimated that 25 percent of the school population of this country is bilingual. In the present investigation the Pintner Group Intelligence Test, Form A, and the Pupil Portraits Questionnaire, Form A, were administered to 469 native-born bilingual Jewish children of the sixth and seventh grades in a New York Public Elementary School. The Pearson Product-Moment correlation coefficients between scores on the Hoffman Bilingual Schedule and the Intelligence Test results, and between the Schedule and the five parts and the total score on the Pupil Portraits Questionnaire were practically zero. High and low bilingual groups of boys and girls, equated on socio-economic status, were compared as to their performance on these same intelligence and adjustment tests and no statistically significant differences were found. It is concluded that bilingualism in this particular population bears no relation to verbal intelligence and school adjustment as measured by the tests employed.

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THE INFLUENCE OF MUSIC DISTRACTION UPON READING EFFICIENCY

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LAYMEN and students will offer varying opinions if questioned about their reading efficiency when the radio is in operation. The writer made random inquiries previous to the initiation of the present study and found little consistency of response on the question. Furthermore, the experimental literature did not present any strong evidence that pertained directly to the issue. It is true that Cantril and Allport's extensive studies (1) on the psychology of the radio were published in 1935, and their questionnaire data relating to the problem became available. These investigators reported that 68 percent of the 142 college students who owned radios indicated that they *believed* their study was less effective when the radio was turned on. Cantril and Allport then indicated that, inasmuch as auditory language patterns inhibit the visual language pattern of the textbook, students generally select a musical program as a background for studying. In view of the significance of the problem, particularly because of the bearing that musical stimuli have in the matter of study regulations, further data were sought.

Lest an impression be conveyed that empirical investigation in the general field of distraction has been neglected, a hasty review of the literature will quickly dispel such a surmise. One of the most frequently quoted of the earlier studies is reported by Morgan (2). This investigator found that, in general, an increased output of energy compensates for the effect induced by distractive stimuli and thereby serves to overcome any diminution in observable output. Laird (3), Ford (4), and Harmon (5), in subsequent studies, tend to corroborate the general nature of Morgan's findings. It appeared that whenever an individual became adapted to extraneous stimuli, the interfering effects are not strikingly noticeable in reducing the output of the activity under scrutiny. The effectiveness of distraction, however, on the complex function of reading was not considered in any of these studies.

An inquiry more closely related to the specific problem under consideration was reported by Hovey (6). Utilizing college sophomores as subjects, Hovey found a slight diminution in the score on the Army Alpha Intelligence test if the students were exposed to a variety of distractors. Bills (7), who briefly reviewed the influence of music on the

effective output in a variety of situations, has reported conflicting evidence.

PROCEDURE OF STUDY

The present investigation was an attempt to measure the change in reading or study efficiency that might possibly manifest itself when certain college students were experimentally asked to study a selected assignment in the classroom. Music emanating from phonograph records was employed as a distractor because it was not possible to standardize conditions that the radio program might offer. The commercial records selected in this instance might be classified as exemplifying lively semi-classical music. These records were played on a table model Victrola (Type VV-IX) at the rate of 78 revolutions per minute with a sound volume that was definitely audible in all parts of the classroom. The subsequent list indicates the records and their order of presentation to those students who studied under the distractive circumstances.

1. Victor Record* No. 7251-A Bolero—Part I
2. Victor Record No. 7251-B Bolero—Part II
3. Victor Record No. 7252-A Bolero—Part III
   (Nos. 1, 2 and 3 by Boston Symphony Orchestra)
4. Columbia Record No. 67535-D El Cemor Brujo (Part 3: Scene: The Magic Circle)
5. Columbia Record No. 67535-D El Amor Brujo (Part 4: Dance of the Fire Ritual)
   (Nos. 4 and 5 by Pedro Morales and Symphony Orchestra)
6. Victor Record No. 7252-B Gymopedie No. 1
   (No. 6 by Boston Symphony Orchestra)
7. Same as 4.
8. Approximately one minute playing time of 5.

Students serving as subjects in this investigation were procured from two consecutively taught sections in the writer's general psychology course (a sophomore subject) at the State College of Washington. These sections, containing approximately 60 students each, were considered sufficiently representative samplings to make an initial venture on the problem under consideration. Since the students had been given the American Council on Education Psychological Examination at college entrance, data were available regarding the degree of their learning capacity. The two sections will hereafter be designated as the non-dis-

*These records were kindly loaned for the study by Professor Herbert T. Norris of the School of Music at the State College of Washington.

tracted and distracted groups, in view of the differential treatment that constituted the experimental variable.

Each section on the experimental day (January 17, 1936) was given a uniformly prepared assignment to study as soon as the class had been assembled. The reading material for this study was a single-spaced 12-page specially mimeographed chapter abstracted from an educational psychology text (8). The general theme of the chapter was a familiar one—the problems of health—but the probability was very slight that any participant had read or studied this particular material. The general psychology course was a prerequisite for the elementary course in educational psychology and, consequently, the students' curriculum could not produce any great likelihood of their venturing into the field covered by the specially selected assignment.

Mention might also be made at this point regarding the character of the test utilized to check the reading efficiency of all the students after they had spent the allotted time in experimental study. Since only 15 minutes were available at most to check the efficiency of study, the class period being only 50 minutes long, a list of 60 true-false questions from Chapter Tests accompanying Dr. Pressey's text was utilized for the sake of expediency. No attempt was made to evaluate the item difficulty; group comparisons merely were to be made and the test was as extensive as possible under the circumstances.

The following instructions were given to the non-distracted (control) group of students:

"In order to procure some additional data regarding the efficiency of reading among college students, you are about to indulge in a half-hour reading period in lieu of the regular class period. Probably the best initial procedure will be to read over the mimeographed material (previously distributed) in its entirety. If you have some remaining time, read it over again and so on. You are asked to apply yourself in reading this material with the same diligence as you would normally take in preparing a course assignment. As a matter of fact, the chapter that you are to read was extracted from a selected text in psychology. At the end of the reading period you will be given a series of check items to measure your ability in remembering the content of your reading. Are you ready? Start!"

The distracted (experimental) group was also given the instructions with the following addenda included before the "ready" warning.

"While you are reading, I shall play a series of phonograph selections. You should pay as much attention to this music as you would ordinarily

when reading your lesson with the radio operating in your room. Remember you will be checked after the reading period. Are you——."

Upon the expiration of the study period for both groups, identical mimeographed true-false check statements with further instructions for procedure were immediately distributed to the students. In addition, a request was made that each participant indicate on the blank whether he was annoyed by studying with the radio on, whether he liked to study or read with the radio, or whether it did not make any difference. Information was also obtained regarding the number of mimeographed pages read during the experimental study. Approximately 15 minutes were available to answer these test items.

RESULTS

Complete records for analysis were available for 61 cases in the non-distracted and 62 cases in the distracted group. The proximate size of both groups was particularly fortuitous. In taking the test the students were permitted to omit any item they did not know. The test scoring, however, was made on the basis of the Right minus Wrong formula, notwithstanding that this method sometimes overpenalizes the performer.

Intelligence test records for the case were available in the college personnel office in centile ranks. This distribution is presented in Table I on a decile rank basis and further consolidated to quintile categories so as to obtain higher frequencies in the subsequent distraction analysis.

TABLE I

INTELLIGENCE OF SUBJECTS

Decile Rank	1	2	3	4	5	6	7	8	9	10	Total
Non-Distracted	3	5	8	5	2	6	6	10	7	9	61
Distracted	6	2	4	8	7	5	5	7	14	4	62

Quintile Rank	1	2	3	4	5	
Non-Distracted	8	13	8	16	16	61
Distracted	8	12	12	12	18	62

Table II indicates the mean scores made by the entire non-distracted and entire distracted group as well as the five component subgroups of each as established by categories based on equivalency of quintile ranks of intelligence.

It is quite readily perceived from Table II that the relation of the observed differences, between the 5 means of the distracted and non-distracted subgroups to their corresponding standard errors of difference, indicates only a fair statistical probability that the particular phonograph records served as a marked distractive influence. Weighted con-

TABLE II

MEAN TEST SCORES OF NON-DISTRACTED AND DISTRACTED GROUPS

Intelligence Ranked by Quintiles	I	II	III	IV	V	Total*
Non-Distracted	22.50 ± 2.78	30.54 ± 1.92	35.25 ± 1.93	36.00 ± 1.59	38.63 ± 1.07	33.69 ± 1.11
Distracted	22.13 ± 2.23	24.08 ± 3.02	31.58 ± 2.00	31.67 ± 1.69	33.83 ± 1.94	29.58 ± 1.11
Mean Difference	0.37	6.46	3.67	4.33	4.80	4.11
σ diff.	3.56	3.58	2.77	2.32	2.21	1.57
D/σ diff.	+0.1	+1.8	+1.3	+1.9	+2.2	+2.6

*These mean scores and standard errors were computed from the individual scores and not from the subgroup figures.

sideration should be given, however, to the fact that for each sub-category the difference was constantly in favor of the non-distracted subgroups. Since the sub-category frequencies might not be sufficiently reliable for indicating the true condition, a comparison of the total group difference is probably a more significant procedure. This comparison is quite legitimate in as much as there appeared to be practically no difference in the intellectual capacity of the major groups as measured by the American Council test. When the mean difference in performance between the entire distracted group and entire non-distracted group is obtained and the ratio related to the standard error of the difference, a definite increment in this ratio is obtained. Here the difference divided by the standard error of the difference becomes 2.6, which means that the chance of obtaining a value as great or greater than the observed difference is 47 out of 10,000 instances. This statistical probability offers little doubt that the distraction was undoubtedly real and effectively manifested itself on student performance.

A rather interesting and suggestive trend is further revealed through an inspection of Table II. It appears that the possibility might well exist that distraction of the sort utilized could lead to varying degrees of interference depending upon the intelligence status. With the exception of the difference manifested by the second quintile intelligence sub-group, the sub-category analysis revealed a gradual diminution of the potency of the distractor accompanying groups with declining levels of intelligence. Although the number of cases in the lowest quintile of intelligence was not very large, there appeared to be practically no difference in the performance at this level between the distracted and non-distracted students. The probability might well be that at the higher levels of intelligence a more delicate adjustment is demanded for full efficiency in

the learning situation and this balance is more readily disturbed by interfering environmental conditions. Further study, however, is necessary on this phase of the problem.

An analysis of the number of pages read during the 30 minute study period by the non-distracted and distracted groups revealed that 17 out of 61 cases, or approximately 28 percent of the former group, read the assignment in its entirety, while 26 out of 62 cases or approximately 43 percent of the distracted group read the entire assignment. This difference of 15 percent is in favor of the distracted group. This percentage difference when related to the standard error of the percentage difference gives a ratio of 1.8: a value that corresponds roughly to the test score superiority obtained by the non-distracted group, but which reverses the advantage. These findings tend to establish the thesis that while the distracted group covered more ground during the half-hour study period, the advantage was undoubtedly nullified through a corresponding loss in reading accuracy and comprehension.

Still another phase of the inquiry endeavored to obtain information regarding the student preference of studying with conditions such as were characterized by the presence of a radio. These findings are indicated in Table III.

TABLE III

STUDENTS' ATTITUDES REGARDING STUDY WITH RADIO ON

Intelligence Ranked by Quintiles	Non-Distracted (N = 61)			Distracted (N = 62)		
	Like	Indifferent	Dislike	Like	Indifferent	Dislike
I	0	2	6	1	2	5
II	0	3	10	1	3	8
III	2	5	1	0	7	5
IV	0	5	11	5	3	4
V	5	7	4	3	8	7
Total	7	22	32	10	23	29

Table III indicates that approximately 50 percent of the students manifested a disinclination to study with the radio in operation. These findings tend to give supporting evidence to the study already referred to that was conducted by Cantril and Allport (1). Inasmuch as approximately 50 percent of the remaining cases were indifferent or liked to study with the radio, the writer believes that the experimental findings with the phonograph record distraction are sufficiently pertinent to question the advisability of their position if maximum study efficiency is to be obtained.

In a study of this character it was obviously impossible to ascertain what, if any, change of energy expenditure might have been involved in order to compensate for distraction. Evidence on this point has already been referred to in the introduction of this report. The situation is probably much affected by the seriousness of purpose involved and the mental set regarding the task on hand. Nevertheless, the general evidence from this study, while not conclusive to be sure, suggests that certain extraneous auditory stimuli that might very well be part of a college student's study background cannot always be completely compensated for, even if increased effort be applied to the activity involved.

SUMMARY

An endeavor has been made to measure the amount of the distractive influence that can be incurred by musical phonograph records upon the study effectiveness of college students. Two groups of subjects manifesting equivalent intellectual ability were given a 30 minute study period on reading material of average difficulty. The experimental conditions were controlled, while the independent variable consisted of the distraction of the study of only one group. This artifact was considered sufficiently analogous to the operation of radios in students' rooms to have a bearing upon the efficiency of study under such a condition.

A consistent difference favoring the efficiency of study for the non-distracted group was isolated with probable statistical significance when total group comparison was effected. This finding is considered to be suggestive and pertinent for practical consideration, particularly because college students are still far from agreement on the matter of study distraction. Suggestive evidence was also revealed to indicate that the influence of music as a potential distractor more seriously affects students functioning at higher intellectual levels. These issues are commended, however, for more extensive investigation.

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GENERAL SCIENCE AS PREPARATION FOR THE STUDY OF BIOLOGY, CHEMISTRY, AND PHYSICS

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ONE of the justifications frequently advanced for the inclusion of general science in the curriculum of the junior high school is its value in preparing pupils so that they make greater achievement in the study of the science courses in the upper years of the secondary school. This claim has received some attention in educational literature. Cramer (5) reported a study of the relation of achievement in general science to achievement in special sciences among pupils of the high schools of Kansas City. Administration of the Ruch-Popenoe General Science Test to 310 pairs matched on the basis of intelligence indicated a superiority in scientific information for those who had completed a year of general science. Cramer also correlated marks received in general science with those received in the following special sciences, botany, chemistry, physics, physiology and zoology. In each case partial correlations were computed holding intelligence constant. The coefficients were consistently positive, the partials ranging from .18 (zoology) to .70 (physics). It is evident that the results of the application of this technique cannot be construed to indicate that success in the subsequent science is caused by success in general science, a fact which Cramer recognizes. He concludes, however, that this relationship is probable because by comparing for each special science the means of the achievement of the group which has preceded the special science by a year of general science with the mean of the group which had not taken general science, he found consistent superior success of the former group over the latter. This assumption appears to be reasonable in so far as various factors, especially that of possible differences in intelligence between the groups, are controlled. He also corrects for the general superiority of one group over another, the superiority being that indicated by the differences between the means of the averages of the final grades in the subjects taken in the same year as the special science.

Another study of this same problem was made by Carpenter (2). He investigated the extent to which general science pupils were more interested in science than those having had biology, but not general science, and the extent to which they were better trained as indicated by the results of their work in physics and chemistry. Comparing the

scores made on term examinations in physics and chemistry by pupils who had completed general science in the junior high school with scores on the same tests for pupils who had taken biology in the tenth grade but who had not taken general science. Carpenter concludes that general science as developed in Rochester schools contributes more to the work in physics and chemistry than does the study of biology. In view of the fact that no attempt has been made to control intelligence or to investigate the significance of the apparent differences, any conclusions based upon these data must be regarded as questionable. A more recent investigation by the same author (3) is interpreted as bearing out the results of the previous study but to it also the same criticisms are applicable.

A much better controlled study is that reported by Ashbaugh (1). The Powers General Science Test and the Ruch-Popenoe General Science Test were each administered to two groups of pupils, one group being ninth grade pupils who had had a year's course in general science during the preceding year. The other group was made up of ninth grade children to whom general science had not been taught in the eighth grade. The students were paired to within one point variation in I.Q. There were 124 pairs on the Powers test and 133 pairs on the Ruch-Popenoe. No statistically significant difference was found between the median scores of the groups on either test. As additional evidence, an analysis was made of the scores on the individual items of both tests with the following results. Of a total of 215 test items, a significant difference in the accuracy with which individual items were answered in favor of the pupils who had had general science was found on 29 items, in favor of those who had not had general science on 10 items, and no significant difference on 176 items. The author concludes that "a year of teaching in a specific field which does not yield significantly greater results on more than 14 percent of the items on a test as extensive as the sum total of these two should be called upon to justify its existence in terms of specific objective evidence."[1]

Hurd (6) investigated the effects of a course in general science upon a subsequent course in physics by determining for physics students not having general science and those having general science the gains made in 12 units of the physics course. Initial and final tests were given in each unit to each group of students. Hurd concludes that a course in general science helps to improve achievement in certain related topics in

[1]Ashbaugh (1) p. 507.

physics, but that there seem to be no general abilities gained from general science which carry over into the field of physics.

The present investigation contributes additional data bearing upon the role of general science as preparation for success in the study of biology, physics and chemistry. The pupils involved in this study were enrolled in science classes at the University of Minnesota High School during the years from 1928 to 1933. The offering in science at this school during the period under consideration consisted of general science in the ninth grade, biology in the tenth grade, and chemistry and physics open to eleventh or twelfth grade students. In a few cases eleventh grade pupils have been permitted to register for biology. During this five year period, the general science classes were taught by two instructors, though the general organization of the course remained about the same under both teachers.

The method employed was to compare in each science—biology, chemistry and physics—matched groups, one of which was composed of pupils who had completed the course in general science at the University High School. The other group in each case was made up of individuals who had not studied general science. The groups in each science were matched on the following factors: (1) sex, (2) chronological age—within six months, (3) intelligence quotient—within five points, (4) previous courses in science (except general science) and (5) courses in mathematics. No other study has matched pairs upon this last item. However, because of the possible effect of training in mathematics upon success in science courses, particularly physics and chemistry, this factor has been controlled in this investigation.

All of the pupils involved in this study had been tested with a series of five group intelligence tests. The tests used were Army Alpha 8, Haggerty Delta 2, Miller, Form A, Pressey Senior Classification Test, and Terman, Form A. Scores on each test other than Terman were equated in terms of Terman according to the method described by Miller (7). The median I.Q. of each pupil, based upon the five equated values, was used as the measure of intelligence in matching pairs for all of the groups involved in this study.

Table I presents the comparison of the achievement of groups matched as stated above in three science courses, biology, chemistry and physics. Achievement in this case is determined by computing for each pupil the sum of the honor point equivalents of the quarter marks assigned to him by the teacher of science. In assigning a numerical value to the mark

the following scale was employed. A = 3 honor points, B = 2 honor points, C = 1 honor point, D = 0 honor points, F = —1 honor point. Quarter rather than semester marks are used because the University High School conforms to the quarter system upon which the University of Minnesota is conducted. For example, since each pupil receives three quarter marks each year, a student who was awarded the mark of A each

TABLE I

COMPARISON OF QUARTER MARKS IN BIOLOGY, CHEMISTRY AND PHYSICS RECEIVED BY PUPILS WHO HAD COMPLETED A COURSE IN GENERAL SCIENCE WITH THOSE OF A MATCHED GROUP WHO HAD NOT STUDIED GENERAL SCIENCE

	BIOLOGY		CHEMISTRY		PHYSICS	
	Gen. Sci.	Non G.S.	Gen. Sci.	Non G.S.	Gen. Sci.	Non G.S.
Number of Pupils	105	105	51	51	20	20
Intelligence Quotient:						
Mean	116.7	117.0	115.3	115.5	120.5	121.0
Standard Deviation	10.9	11.1	10.0	9.4	10.3	10.7
Quarter Marks:						
Mean	4.04	3.83	3.66	3.78	4.55	5.35
Standard Deviation	2.48	2.33	2.70	2.46	1.91	2.01
Differences in Means	.21			.12		.80
P. E. (diff.) (Student's Method)*	±.19			±.30		±.35
Chances in 1000 that differences are statistically significant	770			610		940

*Ezekiel, Mordecai. "'Student's' Method for Measuring the Significance of a Difference between Matched Groups," *Journal of Educational Psychology* XXIII, 446-450.

TABLE II

COMPARISON OF SCORES ON STANDARDIZED TESTS IN BIOLOGY AND CHEMISTRY RECEIVED BY PUPILS WHO HAD COMPLETED A COURSE IN GENERAL SCIENCE WITH THOSE OF A MATCHED GROUP WHO HAD NOT STUDIED GENERAL SCIENCE

	Gen. Sci.	Non G. S.	Gen. Sci.	Non G. S.
Number of Pupils	40	40	29	29
Intelligence Quotient:				
Mean	114.0	113.5	116.1	115.6
Standard Deviation	9.0	8.6	10.3	9.7
Test Scores:				
Mean	51.14	49.00	132.39	122.06
Standard Deviation	10.53	9.95	52.72	46.55
Difference in Means of Test	2.14		10.33	
P. E. (diff.) (Student's Method)	±1.53		± 7.26	
Chances in 1000 that differences are statistically significant	830		830	

quarter was credited with 9 honor points, an individual who earned a mark of C each quarter was assigned 3 honor points for the purposes of this study.

Reference to Table I will indicate that there is no statistically significant difference in the achievement of the group which had had general science as compared to the group which had not in either biology, chemistry or physics when teachers' marks are used as the basis for determining achievement. Because of the small number of cases in physics, the probable error method of determining the significance of a difference is not strictly applicable. Therefore, the "t" probability was employed with the following results:[2]

$$t = 1.26$$

$$\text{Probability} = < .30 > .20$$

Here again no statistically significant difference in the achievement of the groups is indicated.

In connection with the final examinations in June of most of the years represented the classes in biology and chemistry were required to take standardized examinations. These data were available and used for an additional comparison. Perhaps a measurable difference between the groups might be discovered if achievement were measured in terms of an objective examination rather than quarter marks. The examination used in biology was the Oakes-Powers Test of General Biology (6). The chemistry pupils were tested with the Columbia Research Bureau Chemistry Test (4). No significant difference was found between the general science and non-general science groups in either biology or chemistry when measured upon objective examinations (Table II). Computation of the probability in terms of "t" for the comparison in chemistry, where N = 29, indicated no statistical significance.

$$\text{"t"} = .77$$

$$\text{Probability} = < .50 > .40$$

The evidence gathered in this investigation indicates that the study of general science in the ninth grade, in the University of Minnesota High School at least, cannot be justified on the grounds of its preparatory value for success in advanced science courses. Obviously, this study has no bearing on the value of general science in other respects. It may very well be that to achieve other important goals, the propaedeutic value of the subject should be sacrificed.

[2]Fisher, R. A. *Statistical Methods for Research Workers*, p. 139.

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SCHOLASTIC DIFFICULTIES OF THE CHILDREN OF IMMIGRANTS

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Some of the problems of Americanization in our schools are caused by the learning difficulties of school pupils who come from homes where foreign languages are regularly used. Pupils from these homes fail to learn as rapidly as other pupils in the lower grades due to the language handicap. A study has been made recently of such a situation in Hettinger County, North Dakota. The purpose was to discover whether the children of immigrants, who attended the school there, began with an intellectual handicap or whether they had language difficulties simply due to the use of a foreign language regularly in their home environments.[1]

The records in Mott Elementary School indicated that the native American children were markedly superior to those of foreign stock in the marks received. That disturbing discovery led to the investigation reported here. Mental and achievement tests were used and the scores in the latter were compared with school marks. In all cases the pupils from foreign language speaking homes were compared with native American pupils in order to arrive at conclusions concerning the influence of the language factor. Another objective of the study was to investigate the foreign language speaking homes in order to understand their home problems better. A third purpose was to conduct an experiment with children entering the first grade from both types of homes. Those from homes where English was not spoken were placed in a separate classroom with a teacher specially qualified to teach them. The intelligence test scores found at the beginning of the year were compared with those of first grade entrants of native American stock. At the close of the year other tests were given to compare the progress of the two groups.

[1] Stubbins, D. G. *A Comparison of the Scholastic Difficulties of Immigrants and Native American Children in the Schools of Mott, Hettinger County, North Dakota,* Unpublished Master's Thesis, University of North Dakota Library (June, 1936).

THE SITUATION

The elementary schools of Mott, North Dakota, enroll forty percent of their pupils from homes where English is not spoken. The people are mostly farmers who migrated to the United States during the last thirty-five years from North Central Europe. Many of them have lived together in colonies where they have preserved their own language and customs. Forty-eight percent of them came from Germany, thirty-six percent from German speaking sections of Russia, and sixteen percent from Hungary. They speak a dialect of imperfect German with some mixture of Russian and English.

The results of the intelligence tests indicated that the children of foreign language speaking homes were almost a normal group intellectually, but had a lower average I.Q. than those of native American stock. There were only a few low scores in intelligence among them and they failed uniformly to be placed among the high ranking students in school marks in any grade except the fifth. Those two facts pointed to the language difficulty as the probable reason for their poor school marks. The records of three years in succession for the whole school showed an average in school marks of 83 for the children from foreign language speaking homes compared with an average of 87 for those from native American homes. Sixty-four percent of those who failed were from the foreign language speaking homes, although these pupils were in the minority in school by a ratio of two to three. On the other hand, in the late spring of 1935, a standardized achievement test given to all pupils showed that those from foreign language speaking homes were only two months behind the others in educational age.

THE EXPERIMENT

In 1934-35 the first grade was divided according to the home language environment of the pupils. Twenty-two native American children constituted a control group, and eighteen children from foreign language speaking homes were placed in an experimental room. The latter room was in charge of a special teacher who used a procedure designed to overcome the language handicap as quickly as possible. On November 20, the Pintner-Cunningham Primary Mental Test was given to both sections. The experimental group had an average I.Q. of 87 and the others of 106. The difference in home language environment was thought to account for most of the difference in I.Q. On May 20, the Metropolitan

Achievement Tests were given to both groups. The experimental group at that time tested lower than the control group by three months in reading and by one month in arithmetic. The experimental group indicated an average grade equivalent of 2.4 and the native American group had a grade equivalent of 2.6. The superiority of the children from native American homes was no longer significant. The number of failures during the year of the experiment was reduced to four, one of whom was from an American speaking home. That was compared with twenty-two failures in the first grade in 1931-1932, sixteen failures in 1932-1933, and seventeen in 1933-1934. The majority of them all were from foreign language speaking homes.

CONCLUSIONS

The conclusion seems justified that the stimulation of the teachers, pupils, and possibly the parents of the children from foreign language speaking homes, which was brought about by the organization and procedures of this experiment, aided the latter to overcome their language difficulties to an appreciable extent. The population in an area of considerable size in North Dakota contains large minority groups of similar background to the experimental group in this study. The results here obtained suggest that special procedures should be found to aid the entrants to first grade from foreign language speaking homes to overcome their language handicap as rapidly as possible. It is not sufficient simply to carry them along in the grades, hoping that they will fill the gaps in their previous language background unaided.

EXAMINING PERSONAL INFORMATION ITEMS OF A QUESTIONNAIRE STUDY

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THE questionnaire method is often employed in educational research, especially when time and costs are factors which must be taken into account. Occasionally it is possible at a later date to check the reliability of the data obtained and thus ascertain wherein original interpretations are at fault. This report is concerned with a check-up of certain parts of a questionnaire study.

An inquiry consisting of thirty-five items was submitted to 2,229 junior-college students in January, 1934. In the spring of 1935, the investigator selected for investigation the following personal information items: sex, age, classification, date graduated from high school, and father's occupation. Sources used in checking responses were: official scholastic transcripts, personal records filed with the colleges, and oral statements from presidents and deans of the institutions. Visits to the colleges were necessary in order to check the evidence.

Age.—Distributions of ages showed that for 1,735 students whose birth dates were available, median ages from the two sources conformed closely. Median ages of freshman men differed one month, and median ages of the freshman women were identical. For the sophomores there was a discrepancy of two months in the median ages of the men, and one month's of difference in women's ages.

Classification and sex.—The check-up disclosed that no student misstated his sex. Two of 1,311 claimed to be sophomores who held freshman ranking, and eleven took refuge under a "special" classification rather than admit that they were first-year students. No sophomores of 888 checked misrepresented class standing.

Date graduated from high school.—According to transcripts[1] used to check graduating dates for 2,210 respondents, 81 percent of the freshmen were recorded as graduated in 1933. This compares with 73 percent reported in the questionnaires. Twelve percent were graduated in 1932 against 16 percent as stated by students.

Questionnaires showed 68 percent of the sophomores graduated in 1932 while transcripts indicated that 78 percent completed their high-

[1] Transcripts of high-school records include the date of the student's graduation and are permanent records of the colleges.

school work in that year; 20 percent of the sophomores claimed graduation in 1931, the records showed 13 percent.

Father's occupation.—Satisfactory information on this item was procured in 1,198 instances. Data in the two studies were in close agreement for the following occupational groups: proprietors, professional workers, artisan-proprietors, commercial services, and clerical employees. The greatest difference in any one of these classifications was only .6 of one percent.

Significant differences appeared for three classifications. First, 10 percent reported their fathers engaged in managerial services—the records supported seven percent in their statements; second, the 1934 study showed 48 percent in agricultural pursuits, compared with 56 percent in the 1935 investigation; finally, manual labor accounted for 13 percent of the occupations reported by the students, and 10 percent in the college records.

Summary.—The 1935 evidence indicates, excepting one item, that the variances are not so marked that the first interpretations should be modified materially.

Ages reported were practically the same as those obtained from the college records; only a trace of students reported their classification incorrectly; no respondent misrepresented his sex; and the responses regarding father's occupation yielded a high percentage of trustworthy statements, although it appeared that a few students were inclined to "play-up" their fathers' occupations.

Contrarieties in dates of high-school graduation suggest that a check of the transcripts against the high-school records should be made, for there is little reason to suppose that students deliberately seek the stigma of retardation.

PERSISTENCE AND MARK IN THE UNIVERSITY OF MINNESOTA LAW SCHOOL

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THE problem of persistence as a criterion of success in the law school was studied as part of an investigation of admission requirements and procedures at the University of Minnesota. It was sponsored by the Board of Admissions and the Committee on Educational Research of the University and carried on with the coöperation of Dean Everett Fraser and members of the staff of the Law School. All of the figures given were taken from the records at the Law School of the University of Minnesota.

That persistence is a problem is indicated by the large percentage of students who are eliminated at the close of the first year in the law school. Table II has been arranged to show the number of students enrolling in the law school in each of nine groups entering from 1926 through 1934. These do not include those students not admitted because they were most likely to do unsuccessful work in the law school as indicated by predictive measures and techniques. In most instances, the percentage of students dropped from the law school by request of the faculty exceeds that of those who "cancel out of"—that is, withdraw from the law school without being requested to do so. The critical points when students are dropped by the law school faculty are found at the close of each year's work as represented by final yearly examination. In a large number of instances, cancellations probably forestall withdrawal by request because of low grades. (Table I)

TABLE I

THE NUMBER OF FIRST YEAR CANCELLATIONS WITH FIRST QUARTER LAW GRADES WITHIN CERTAIN AVERAGES, 1933-34 AND 1934-35

First Quarter Law Averages	77–73	72–68	67–63	62–58	57–53	52–28
Number of Cancellations						
1933-34 Group	7	0	1	3	0	2	1
1934-35 Group	15	1	2	0	2	2	8

The figures in Table I do not include students who cancelled out of school before the end of the first quarter or those who did not take

TABLE II

TOTAL ENROLLMENTS, DROPS, CANCELLATIONS AND ELIMINATIONS BY CLASSES FROM THE FIRST THROUGH THE THIRD YEAR OF LAW SCHOOL AT THE UNIVERSITY OF MINNESOTA

Entering Groups

	First Year				Second Year				Third Year				Total*		
Classes	Enter No.	Drop %	Cancel %	Total Elim. %	Enter No.	Drop %	Cancel %	Total Elim. %	Enter No.	Drop %	Cancel %	Total Elim. %	Drop %	Cancel %	Total Elim. %
1926-29..	104	10.6	8.7	19.2	85	7.1	1.2	8.2	81	0	2.5	2.5	16.3	11.5	27.9
1927-30..	117	17.1	12.8	29.9	75	8.0	1.3	9.3	70	2.9	1.4	4.3	23.9	14.5	38.5
1928-31..	116	19.1	6.0	25.0	80	7.5	2.5	10.0	75	2.7	0	2.7	25.9	7.8	33.6
1929-32..	129	17.8	13.2	31.0	81	1.2	4.9	6.2	77	0	1.3	1.3	18.6	17.1	35.7
1930-33..	97	21.6	5.2	26.8	74	6.8	0	6.8	71	4.2	1.4	5.6	29.9	6.2	36.1
1931-34..	97	9.3	12.4	21.6	76	7.9	2.6	10.5	66	4.5	3.0	7.6	18.6	16.5	35.1
1932-35..	119	15.1	13.4	28.6	85	7.1	1.2	8.2	79	1.3	5.1	6.3	21.0	17.6	38.7
1933-35..	144	25.7	11.8	37.5	87	9.2	1.1	10.3					31.3	12.5	43.8
1934-35..	146	29.5	14.4	43.8									29.5	14.4	43.8
Total....	1069	19.1	11.1	30.2	643	6.8	1.9	8.7	519	2.1	2.1	4.2	24.2	13.3	37.5

* The percentages are based on the group entering the first year. This is not quite exact because there are some who entered in the second or third year who are not a part of the first year entering group and may make up part of the elimination after that time. This would make percentages slightly large.

the first quarter law examinations. With the failing work according to first year law averages set at 67 or less, six out of seven, 85.7 percent, in the 1933-34 group and twelve out of fifteen, 80 percent, in the 1934-35 group are definitely in danger of being dropped because of low scholarship. Only one student of the twenty-two cancellations was a superior student. The records did not show reasons for cancellations.

The total percentage of students eliminated by the end of the first year is 30.2, during the second year 8.7, during the third year 4.2, and the grand total enrollment elimination is 37.5 (Table II). These data indicate that low grades as evidenced by forced withdrawal from the law school are the most important cause of elimination in year groups, by years, or in total. The data found in Table II are arranged to show the progress of each entering group through a period of three years. These data indicate that about 67 percent (519) of the 779 students who entered the law school over a period of seven years (1926-32) registered for the third year of law school work. This number was further reduced by 4 percent due to elimination during the third year. Of the classes entering in 1933 and 1934, the percentages not continuing into the second year are higher than previously, being 37.5 percent and 43.8 percent, respectively. These data seem to warrant the conclusion that the problem of admission to the Law School at the University of Minnesota revolves around probable withdrawal, forced or voluntary, because of low law grades and inability to do law school work successfully.

Persistence, as represented by the ability or tenacity to finish a certain number of quarters or years of law work, is somewhat limited in its total influence in that certain numbers of students who are doing failing work in the law school are requested to withdraw or drop out of school. Thus, persistence is very closely related to making good law averages. This seems to indicate that quality of work done is synonymous with persistence, only one student in ten averaging above 75 failing to continue in the law school and only about one in eight with averages below 70 remaining.

Of 103 students in the 1933-34 group who completed the first year of law and were selected for special study, 64 (62 percent) returned and completed the second year of law, while 39 (38 percent) did not do so. The quality of performance of these two groups according to first year law grades was distinctly different as indicated by data tabulated in Table III. The median marks for the two groups were 76 and 64, respectively.

TABLE III

THE PERCENTAGES OF SECOND YEAR LAW STUDENTS MAKING FIRST YEAR AVERAGE LAW GRADES, 1933-34 GROUP

Groups	N	89—85	84—80	79—75	74—70	69—65	64—60	59—55	54—50	Median Grade
Completing Second Year	64	14	11	34	28	13	0	0	0	76
Not Completing Second Year	39	2.5	5	2.5	8	26	33	15	8	64

Of those who did not complete the second year of law school, 56.3 percent ranked lower in the first year law average than did any of those who completed the second year of law school work. Only 7 (18 percent) of the 39 students who did not complete the second year had attained first year law averages of 70 or more, while 56 (87 percent) of the 64 who completed second year law had averages of 70 or more. Of the 64 who completed second year law, only three were forced to withdraw from the law school later because of failing grades. All three of these were among the seven whose first year law averages were below 70. Hence, of the 61 students who completed the second year of law school work with passing grades, only five had made first year law averages of less than 70, though 83.3 percent of the 42 students who were eliminated before the end of the second year were below 70 in the first year law average. It is evident that lack of persistence is very closely related to low grades in the law school, and that persistence and passing grades or quality of performance in the law school are closely related.

The relation of scholarship to persistence of students in the 1934-35 group is indicated by the relative numbers who continued from quarter to quarter and by the ranking of each continuing or non-continuing group on the basis of previous law quarter averages, as shown in Tables IV, V, VI, VII, and VIII.

TABLE IV

THE NUMBER OF SECOND QUARTER LAW STUDENTS MAKING FIRST QUARTER LAW GRADES WITHIN CERTAIN AVERAGES ACCORDING TO SUCCESS IN COMPLETING OR NOT COMPLETING THE SECOND QUARTER, 1934-35 GROUP

Groups	N	89–80	79–70	69–60	59–50	49–40	39–30	No Grade	Median Grade
Completing Second Quarter	129	3	33	51	30	8	3	1	64
Not Completing Second Quarter	9	0	1	2	2	3	1	0	50

TABLE V

THE NUMBER OF FIRST YEAR LAW STUDENTS MAKING FIRST QUARTER LAW GRADES WITHIN CERTAIN AVERAGES ACCORDING TO SUCCESS IN COMPLETING OR NOT COMPLETING THE FIRST YEAR, 1934-35 GROUP

Group	N	89–80	79–70	69–60	59–50	49–40	39–30	No Grade	Median Grade
Completing First Year	123	3	33	50	27	7	2	1	64
Not Completing First Year	15	0	1	3	5	4	2	0	51

TABLE VI

THE NUMBER OF FIRST YEAR LAW STUDENTS MAKING SECOND QUARTER LAW GRADES WITHIN CERTAIN AVERAGES ACCORDING TO SUCCESS IN COMPLETING OR NOT COMPLETING THE FIRST YEAR, 1934-35 GROUP

Group	N	84–80	79–70	69–60	59–50	49–40	No Grade	Median Grade
Completing First Year	123	5	44	44	16	10	4	67
Not Completing First Year	6	0	0	2	1	3	0	50

TABLE VII

THE NUMBER OF FIRST YEAR LAW STUDENTS MAKING FIRST AND SECOND QUARTER LAW GRADES WITHIN CERTAIN AVERAGES ACCORDING TO SUCCESS IN COMPLETING OR NOT COMPLETING THE FIRST YEAR, 1934-35 GROUP

Group	N	84–80	79–70	69–60	59–50	49–40	39–30	No Grade	Median Grade
Completing First Year	123	3	36	49	26	3	1	5	65
Not Completing First Year	6	0	0	1	3	1	1	0	53

TABLE VIII

THE NUMBER OF FIRST YEAR LAW STUDENTS PASSING AT THE END OF THE FIRST YEAR, FAILING AT THE END OF THE FIRST YEAR, OR ELIMINATED BEFORE THE END OF THE FIRST YEAR WHO MADE FIRST QUARTER LAW GRADES WITHIN CERTAIN AVERAGES, 1934-35 GROUP

Group	N	87–78	77–68	67–58	57–48	47–38	37–28	No Grade	Median Grade
Passing First Year	80	6	36	31	6	0	0	1	68
Failing First Year	43	0	2	17	18	5	1	0	56
Eliminated Previously	15	0	3	2	6	2	2	0	51

These data show that eight of the nine students not completing the second quarter of law work and fourteen of the 15 students not completing the first year of law school attained first quarter law averages below 70, the lowest unconditional passing mark. They also indicate that all six of the students dropping out in the third quarter of the first year

attained second quarter law averages as well as first and second quarter law averages of less than 65, which is a failing mark.

Of the 15 students who withdrew from the law school after having written at least one of the quarterly law examinations but before completing the first year of law school work, 12 (80 percent) received grades of 67 or less in the first quarter law average, while 95 percent of the 43 students who failed at the end of the first year of law school with averages of 67 or less also received marks below that point in the first quarter law averages. An average of 67 is a failing mark for the first year law work. On the other hand, these data show a lesser degree of relationship between persistence in the law school and passing grades in that school. Of the 80 students with passing marks at the end of the first year of law work, 37 (46 percent) received first quarter law averages of 67 or less.

CONCLUSIONS

The following conclusions seem warranted: First, there is a very close relationship between lack of persistence and low law school marks from the first quarter to the end of the second year of law school work; second, the relationship between persistence in the law school and passing marks is closer during the second year of law school work than it is during any one or more quarters of the first year of law school; third, continued length of stay in the law school quarter after quarter does represent ability or aptitude for doing law school work successfully; finally, persistence in the law school is a good criterion of success in the law school. However, for purposes of the early prediction of such success, it is not of much practical value because complete data concerning relative persistence may only be obtained so late in the law school progress of the student that early selection of successful students on that basis is practically impossible.

EDITORIAL

THE FORGOTTEN VARIABLES IN RESEARCH

No educational investigation takes place in a vacuum. On the contrary, every investigation takes place in a setting upon which many pressure variables are casting their subtle shadows. Careful investigators, through cautious planning and through the employment of control groups, make every effort to eliminate the influence of all factors except that of the single variable under consideration; but in spite of all the care exercised in the controls, the hidden influences of customs and social practices are often overlooked. These traditional influences may be well called the forgotten variables in educational investigations.

To illustrate the effects of these forgotten variables, a number of examples will be presented. In one of the writer's investigations efforts were made to ascertain the amount of arithmetic known by children at the time of introducing formal instruction in arithmetic. Every care was exercised to examine the nature of instruction in school in order to account for the surprisingly large amount of knowledge possessed by the children. Since no formal instruction in school had been introduced and since the incidental instruction was inadequate to account for the large amount of knowledge portrayed, there was a temptation to assume that the children's mastery of the processes of arithmetic had resulted from their participation in the social life with which they were surrounded. It seemed obvious that they might learn certain number facts from the errands which they ran for their parents or for older members of the family, from the games which they played with other children, and from their associations with older children, parents and adult members of society. Such incidental learning might seem to have been the result of the children's functioning in their out-of-school social endeavors. One might be tempted to speak of these accretions in the knowledge of arithmetical processes as the results of the social maturings of the children. However, examination of the total social environment of the children revealed that it was the universal custom of the parents in the communities involved to give the children in the home definite formal instruction in the fundamental processes of arithmetic. While the status revealed may

have been due partly to the effects of social maturing, it is safe to say that the parent's formal instruction was a neglected variable which was responsible for a large part of the achievement revealed.

The foregoing illustration is typical of a possible neglect of the community traditions and practices in the interpretations of the findings in an uncontrolled investigation, but such oversights often exist in the interpretation of findings from carefully controlled experimentation. In an effort to determine the relative effectiveness of the subtractive or additive methods of subtraction, care exercised to equate the control and experimental groups in such factors as mental ability, initial achievement in handling the fundamental operations, the quality of the teaching, the amount of time devoted to instruction, and the nature of instruction, is apt to be offset by the frequently neglected factors of social and traditional practices prevailing among the people. The conditions within the school may be well controlled, but the social and traditional ways of the community will exert influence favorable to one method or the other. If the subtractive method represents the method widely used by these people, the practice secured in meeting the affairs of everyday life will certainly exert a hidden pressure favorable to the group emphasizing the subtractive method and unfavorable to that emphasizing the additive method. Furthermore, if the prevailing method in the community is subtractive, it is reasonable to assume that the mind-set of the pupils in both the control and experimental groups will be toward the subtractive method and that the group which must practice with the additive method must overcome the subtractive mind-set in order to master the additive. Again, this group emphasizing the additive method will encounter the conflict of the additive method given in the practice afforded in the experimental period and the subtractive method prevailing in the affairs of the community. It is ventured that the influence of social and traditional practices in the community have often been more largely responsible for the difference portrayed than have been the variations in the methods under consideration.

The effect of the neglect of these social practice experiences is often overlooked in studies of growth and maturity. To measure the influence of mere growth or maturity, those interested in research set investigations in which instruction in school is postponed. Fine controls are exercised in the school situation in which the investigation is launched and over the type of community from which the children are selected, but usually no check up is made of the out-of-school instruction eventu-

ating from the customs and practices of the people. The investigation in the experimental group may call for postponement of instruction in a subject in the school, but there is a strong likelihood that such instruction in the non-school agencies will not be postponed. The failure to postpone is almost certain if the traditional customs and habits pertaining to the subject under consideration are deeply ingrained. For the school to postpone the teaching of reading until the beginning of Grade II or Grade III, or to postpone the teaching of arithmetic to the beginning of Grade IV, does not mean that no instruction in reading and arithmetic will be given before the advent of the pupils in these designated grades. It is reasonable to assume that when the time arrives at which most of the parents and members of the community received instruction in these subjects, the instructional processes in the home and in all non-school agencies will begin. The school may attempt to set aside tradition, but tradition continues to function in the non-school agencies and produces results which may be as effective as instruction given under the auspices of the school. It seems obviously unsound to conclude from a comparison of the relative achievement or rate of learning of the two groups when formal instruction is introduced in the experimental group after the period of experimentation, that the status shown in the group in which formal instruction was postponed resulted from mere growth or social maturing. It is postulated that the investigator may have broken with traditional practice in the postponement of instruction in the school, but that in non-school agencies tradition reigns supreme and in unrecognized fashion colored the very nature of the findings.

The gist of the above discussion suggests that in much of the most carefully controlled educational experimentation, the uncontrolled influences of customs and tradition affect the findings as much or more than the one variable under consideration. To reduce such an effect demands that the type of controls designed for the activities of the school be extended to the activities of the non-school agencies. But even with the application of the most refined techniques, it is questionable whether or not this elusive influence can be eliminated.

CLIFFORD WOODY

REVIEWS

Address all communications relative to book reviews to Editor Kai Jensen, University of Wisconsin, Madison, Wisconsin.

WYNNE, JOHN PETER. *The Teacher and the Curriculum* (New York: Prentice-Hall, Inc., 1937), pp. xxxii + 440. $2.50.

This new book by Wynne presents a concise, logical, and thought-provoking application of a philosophy of education to the various aspects of curriculum development and methods of teaching which is of greatest value to teachers.

The philosophy of education is stated in the form of six principles of education selected as a result of analyzing social affairs, experience, and principles of science. The principles are: experience need, progressive adaptation, continuity of experiencing, unity of experiencing, selective choice, and contingency. These six principles are applied to such topics as: aims, scope, and content of the curriculum; planning, initiating, developing, and culminating units; making assignments, guiding study, and conducting recitations in relation to the teaching of units; and evaluation of content, procedures, and outcomes by teachers and pupils.

The advantages and disadvantages of different points of view, plans, and procedures are considered carefully in the light of the six principles of education. The application of these principles leads the author to a non-extreme, well-balanced point of view which should be genuinely helpful to teachers in improving their school work.

The author adopts the conception of progressive adjustment as the goal of education. He proposes twenty aims of education which he considers represent the experience needs of the American people. The proposed aims are similar in nature to those stated by the committee of the National Education Association on the Social-Economic Goals for America.

Emphasis is placed on the importance of the teacher discovering the needs and potentialities of the pupils, planning her work carefully but flexibly, and allowing the pupils to help choose and estimate courses of action, determine progress, and judge results. More attention to guiding the study of pupils, to evaluating all aspects of instruction, and to making more meaningful and helpful reports to pupils and parents was advocated.

As intended, the book omitted those aspects of curriculum development which would be of primary interest to school administrators rather than teachers. On the other hand, it was thereby possible to treat the curriculum and methods of teaching in the same volume.

The book might well have given more attention to the needs for and extent of curriculum revision and to the outstanding features of recent city and state curriculum programs which would be of interest and value to teachers.

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ODENWELLER, ARTHUR LEONARD. *Predicting the Quality of Teaching: The Predictive Value of Certain Traits for*

Effectiveness in Teaching. Contributions to Education, No. 676 (New York: Bureau of Publications, Teachers College, Columbia University, 1936), pp. xi + 158. $1.60.

The problem treated in this work is that of finding the degree to which several easily secured measures of a teacher are related to teaching effectiveness.

The book begins with the summary and a review of ten previous studies appearing between 1905 and 1931. An excellent feature of this review is an 11-column chart giving the essential information in these studies under the following headings: (a) Study (author, title, and year), (b) Purpose, (c) Sources of Data, (d) Grades (taught by teachers), (e) Number of Teachers, (f) Criterion of Effectiveness, (g) Factors in Teaching, (h) Techniques, (i) Limitations, (j) Findings and Conclusions, and (k) Comment.

The criterion of teaching effectiveness used in this study is a general merit rating. Teachers in each of 69 schools were "ranked" by three judges. "Ranking," says the author, "consisted in placing teachers into at least eight groups or grades of quality." The middle one of the three was converted by the use of Hull's tables into a score. Only 25 percent of the teacher groups were "ranked" on a scale having ten or more points. One hundred twenty-nine different judges made the rankings.

A considerable amount of space is used in justifying a general merit rating as the criterion of teaching effectiveness. The author implies that judges rate teachers on the basis of their use of methods shown experimentally to be superior and depreciates attempts to measure the effectiveness of teachers through the changes induced in pupils. The reliability of general merit rating was estimated by correlating scores given a teacher by one judge and similar scores given by another judge. Teachers in each of the 69 schools had a different set of judges; therefore, to the extent that judges in each building tended to agree with each other better than with judges in another building, the reported reliability of .76 is too high. It is somewhat unusual also to calculate reliability coefficients with scores distributed on a scale having only eight points. This same coefficient (.76), when compared with the average intercorrelation between three group intelligence tests, is taken to be a satisfactory measure of the validity of the general merit ratings.

Correlations between these general merit ratings of effectiveness and twenty-odd other measures were secured. The obtained coefficients vary in size from .825 to approximately zero. The top three show the correlation between personality and general merit as rated by three different sets of judges. The fourth from the top (.293) is the correlation with college marks. All others are less than this; but with 560 cases, 16 coefficients are more than 4 times the probable error. This point should be considered with caution, however, since by extending the number of cases, any coefficient above zero could be made to appear "significant." The following different measures were correlated with general merit: Personality, college marks, subject-matter marks, education marks, theory marks, technique marks, practical arts marks, student-teaching marks, psychology marks, age, experience, marks in additional courses, height, high school marks, handwriting quality, letters in signature, weight, intelligence, height-weight ratio, and photograph attractiveness.

Considering the usefulness of his findings to school administrators the author says: "To the extent that the findings

here apply, if any administrator desires to identify the high eighth or low eighth . . . he can in a city of 50,000 population in about an hour get for his elementary teachers a rating for effectiveness with an agreement of measures higher than he would get for their intelligence with three group intelligence tests, and higher than he would get for the quality of their handwriting scored by three experts using a standardized scale. . . . A guess would obtain a teacher whose expected effectiveness resembles her actual effectiveness in about the same degree that persons selected at random resemble each other; a personality rating would secure a teacher as much like expectations as a sister. A guess would recruit a teaching staff with superior and inferior teachers in equal numbers; a personality rating would recruit a staff with superior and inferior teachers at a ratio exceeding 35 to 1."

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SNEDDEN, DAVID. *An Introductory Sociology for Teachers* (New York: Thomas Nelson and Sons, 1935), pp. xi + 456. $2.00.

The author is to be commended for naming his book as he does rather than calling it "Educational Sociology," as some other authors would have done. It is a text in general sociology which would be as suitable for other types of students as for teachers. It is characterized particularly by two features: (1) It makes little use of abstract principles; its approaches are concrete illustrations of groups, institutions, and processes, and appeals to the recollection of the reader's own experiences. (2) It makes very extensive use of quotations from recent contributors to sociological literature and philosophical discussion, nearly a fourth of the space being devoted to such quotations. It is the author's intention, by this and other techniques, to bring before the reader a series of vivid pictures of social institutions and processes. But it must not be understood from this that the treatment is fragmentary and disjointed. On the contrary, the discussion moves on cumulatively toward general concepts even though these are nowhere paraded in pedantic terms. The book is one of the best examples to be found anywhere of an informal inductive approach in which the author is evidently conscious of his objective at every point and which, in spite of great informality, eventuates in clear-cut outcomes for the reader.

In this book sociology is conceived rather broadly. It covers considerable materials from economic and political science as well as sociology in the more restricted sense. It is thus, in a sense, introductory to the whole field of social science. The book is well adapted to younger students in liberal arts colleges or to teachers colleges. It would seem also very suitable for good students in the secondary schools. It is however, no flimsy treatment; it has a substantial intellectual content and the writer of this review anticipates that it will leave with students a sounder grasp of sociology than has accrued from much of the literature that purports to be more pretentious. The style is extremely attractive; it is Snedden at his best.

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FITZ-SIMÓNS, MARIAN J. *Some Parent-Child Relationships. As Shown in Clinical Case Studies.* Contributions to Education, No. 643 (New York: Bureau of Publications, Teachers College, Columbia University, 1935), pp. xi + 162. $1.75.

This study is an attempt to develop and

apply a technique for estimating from case material the parental attitude of acceptance or rejection of the child. Statements relating to the reactions of parents toward children were culled from case material and submitted to 25 child guidance clinics to be sorted according to the degree of attachment of parent to child indicated. Nine categories ranging from 4 + to 4 — were used. The author points out that these categories are qualitative rather than quantitative. Thirty-seven additional statements which refer more directly to the parent's feeling toward the child or the child's behavior toward the parent were similarly rated. From the latter a group of twelve general statements was selected and labeled "Key Points." These are used to identify the special attitude of over protection which is really disguised rejection. In all cases items were selected or rejected in the light of a special criterion of ambiguity. The resulting instrument is called "A Guide for the Estimating of Parental Attitudes on Case Data."

Ninety-four cases were selected from the files of three demonstration child guidance clinics and analyzed with the help of the Guide. In 64 cases 50 percent of the mothers and 42 percent of the fathers were estimated to have a negative attitude toward the child. The greatest number of withdrawing problems per child as well as the greatest number of all problems per child is recorded for the group that is over-protected by the mother and rejected by the father. The group of children who are judged to be rejected by both parents have the greatest number of aggressive behavior problems listed.

The effort to develop an instrument by which data obtained in case studies can be accurately described is certainly commendable. However, the method used in this study is exceedingly clumsy and the author's statement that ratings were treated qualitatively only, is in numerous instances not justified. For example, when items from several categories are combined, some quanitative meaning is given to the categories. The author states at the outset that she thought it would be difficult to treat the material quantitatively but adduces no evidence to support this assumption. The reliability and validity of the Guide are admittedly inadequately determined.

The methods used in treating the data show the need for a clearer definition of the attitude variable or variables and a more rigid test of the ambiguity of the various items in the guide. A more clearly conceived attack upon the problem is required.

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BRUNNER, EDMUND DES., AND LORGE, IRVING. *Rural Trends in Depression Years: A Survey of Village-centered Agricultural Communities, 1930-1936* (New York: Columbia University Press, 1937), pp. xvi + 387. $3.25.

This is a report of the results of a third survey of the same 140 village centered agricultural communities, studied under the same director since 1923. The book has a two-fold purpose. First, to report the results of a study of changes in rural social life in the United States during the depression, 1930-1936. Second, to restudy the same village centered agricultural communities to determine any possible new phases of development, using the two earlier surveys as a check.

In presenting the changing agricultural backgrounds as evidenced by this study, the depression did not affect all rural areas alike, showing a wide variation of urgency and effects of the Emergency Agricultural program. While areas studied were nation wide in scope, it was

found that regions within states were often harder hit than others, with a corresponding response to the Emergency Agricultural legislation.

While the number of villages studied may be small as compared to the total number of villages in the United States, the methed of selecting communities representative of the "service station" villages in major crop regions, (after careful consultation with colleges of agriculture and state boards of education) may be a satisfactory sampling. However, the variations found not only within the regions, but within areas of any given state, would seem to indicate that a larger number of village centered communities might have changed the picture in any given area. On the other hand, the data gathered by actually visiting and studying the same community three times were adequate, and carefully worked out, giving an accurate picture of the villages under consideration.

More than twenty-five percent (chapters 7-8-9) of the study is devoted to problems of rural and rural adult education, and throughout the book the problem of education seems to permeate.

Since the authors find that many agencies, such as the schools, extension workers and others, have for many years been laying the foundation in these rural centered villages, it is possible that the changes accredited to the past few years of the depression may have had their seed of germination several decades before. However, as a result of the work of extension workers and Smith-Hughes teachers since 1917, plus the conditions in rural communities which were greatly accelerated by the depression, the data presented show the resultant change.

The program of extension education has not reached the villages in the same fashion as rural America (i. e., the farms). Adult education was well started before the depression, was discontinued in many rural areas during the early part of the depression, being later revived by federal aid, with signs of unusually rapid growth. Adult education is centered about vocational education, the emphasis being agricultural, with the Smith-Hughes teacher often the center of such activity. Since adult schools and evening schools have been encouraged by federal, as well as state agents, in the field of agriculture and Smith-Hughes work since 1917, this phase of the work is a continued growth with particular emphasis upon problems facing rural America. During the crisis beginning in 1930, and continuing throughout this study, it is quite evident that these educational facilities have been greatly accelerated.

This book indicated clearly that farmers curtailed expenditures more, and were more willing to lower their standards of living to meet their reduced incomes than their city neighbors.

While the authors discuss social organizations, rural religion, government and health, and rural relief in the light of their investigations, the greatest change is noted in the latter, the same being stimulated somewhat by needs and changed attitudes resulting from the depression and recent federal legislation.

For those who are interested in the problems of rural education and sociology, the book may well take its place as a valuable addition to their reference library. To the rural educationist, it is additional proof that there is a vast field for study; that these rural problems will not be solved in the immediate future, but that any hope in so doing lies largely in a program of education which must reach not only the boys and girls of high school age, but the adult rural population as well.

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PUNKE, HAROLD H. *The Courts and Public School Property* (Chicago: The University of Chicago Press, 1936), pp. xvi + 313. $3.00.

The acquisition and use of sites, buildings, and other property for public school purposes involves large aggregate outlays and is often accompanied by litigation. As here pointed out many times, some of the legal controversies thus arising could have been obviated if the school administrators concerned had possessed a good understanding of elementary principles of law in the premises. An important service has been rendered to the profession of education by the author and publishers of this comprehensive manual which presents in well-organized and readable form the facts disclosed and the conclusions reached in upward of a thousand judicial decisions in cases touching school property. The cases included are the leading decisions of the higher courts in all the American states, and constitute substantially what may be called the core of the common law relating to school sites and buildings.

Let no one suppose that this book is a dry forbidding succession of stereotyped digests, devoid of coherence and literary charm. Instead it consists of eleven chapters written in narrative and expository style, each telling the story of the cases relating to one important phase of the general subject. The cases are thus grouped with regard to the legal principles of general application which they establish or modify. Decisions in widely scattered jurisdictions are frequently juxtaposed for the purpose of illuminating the legal and social philosophy upon which they rest. The author is to be especially commended for attaching to each citation the year in which the case was decided. This enables the reader instantly to place each decision chronologically, and greatly facilitates his opportunity to understand the circumstances which may have contributed to the result. It also enables him to observe the evolution of the law from decade to decade, and permits him to take the essential historical perspective.

A complete table of cases arranged alphabetically by caption, and also showing the jurisdiction, makes it easy for one who may be interested in the law of a particular state to locate speedily all the decisions in that jurisdiction which have been included in the book. To refer quickly to any minor sub-topic within the scope of the comprehensive subject, the reader is guided by an analytical table of contents and a good index.

The foregoing description fits a reference book, and such is the volume now under review; but to alert school administrators and teachers it is much more than a reference manual. One can read it chapter by chapter with assurance that he is adding substantially to his professional knowledge, and with the discovery that this is not necessarily a laborious or distasteful process.

Only an inkling can be given here of the wealth of detail. With respect to the authority of school boards to provide buildings and sites, and their general contractual powers relative to property, there are cases concerning the exercise of eminent domain, the leasing of sites and buildings, the acquisition of property by gift, and many related topics. Not the least important are those involving contracts in which school officers are found to have a personal financial interest. It is pointed out that in the absence of a prohibitive statute, the courts differ as to whether the financial interest of a board member makes the contract void, or merely voidable at the option of the district. It might have been added that there are also cases holding such con-

tracts valid and enforceable, when the evidence disclosed no deceit, collusion, or other fraudulent intent. It is correctly shown however, that several states have statutes making such contracts absolutely void.

In cases touching contracts for the construction of school buildings, such points arise as the conditions governing the employment of architects, the circumstances determining the necessity of advertising for bids on building contracts and the precise procedure required, and what acts by a board of education constitute acceptance of a school building and discharge of the builder's obligations. Many cases have dealt with the surety bonds of school building contractors. Another matter of increasing current interest is the power of school authorities to insure school property. The principal question includes what casualties may be insured against, and whether the insurance may lawfully be purchased, if at all, from an old-line company or a mutual company.

The progress of school consolidation and the devolution of additional responsibility for recreation upon the schools are among the causes operating to preserve the importance of those branches of the law which bear upon the sale or other disposition of school buildings and sites, as well as the reversion of school property to the original grantor upon the abandonment of its use for educational purposes.

The group of cases most intriguing to the observer of current social trends consists of those which contain judicial pronouncements concerning the uses of school property by non-school organizations or for non-educational or general community purposes. At this point the book suffers slightly on account of the fact that it was not published until some three or four years after the author's work was completed, and does not contain some of the recent cases concerning the tendency t make the school plant a multi-purpos community center.

A thorough study of the work not onl reveals that the author is gifted wit clarity of expression, but also gives ampl evidence that he has been painstaking throughout and that the work is remark ably free from mechanical errors and faults in legal scholarship, as well as largely clear of ambiguities and obscurities.

M. M. CHAMBERS
American Youth Commission, Washington, D. C.

STRANG, RUTH. *The Role of the Teacher in Personnel Work.* (Revised and Enlarged) (New York: Bureau of Publications, Teachers College, Columbia University, 1935), pp. xiii + 417. $2.50.

The preface of the revised edition states that "The author has incorporated new points of view regarding guidance and has benefited from the suggestions of her students and others who have used the first edition." The new views and changes are not listed. The preface of the original edition, however, builds up an excellent case for personnel work. Emphasis is placed upon teacher participation, upon regarding guidance as being continuous and as permeating the entire structure of the school.

The organization of the book is exceptionally good. Aims and uses are succinctly set forth in the preface followed by logical and coherent development of the material. Three parts containing respectively six, seven, and six chapters discuss "Individualization of Education," "Student Adjustments," and "Technics of Personnel Work." Part I contains a readable statement of the philosophy and organization of personnel work together with an outline of the work of those per-

sons participating. Part II contains an excellent key list of adolescent problems and discusses various techniques of adjustment. Part III presents a well organized and easily understood summary of the actual technics of personnel work.

The treatment throughout is extremely simple and direct, the volume being planned evidently as a text in teacher training and for less experienced teachers in service. It would not be of special value to advanced students in the field of guidance or personnel. The material is largely descriptive and informational. There is, of necessity, very little interpretation or justification. Several statements are made without the scientific background indicated, and some of the philosophic discussions are a bit formal and abstract. All of it is, however, eminently sound.

Bibliographies are placed at the ends of the three parts and cover the several chapters. References are exceptionally well selected. Study and discussion questions also come with the parts and not with the chapters. These questions are few in number, many are formal, some so indefinite as to be useless. Some are very good, but this is probably the weak spot in the volume. The material is admirably adapted to student problem solving, reports, and investigations. An unusually good set of questions could have been worked out. Doubtless it is expected that the competent instructors will work out study questions and reports with individual classes.

The volume should be of distinct service in teacher training institutions.

W. H. BURTON

University of Southern California

KIRKENDALL, LESTER A. *Factors Related to the Changes in School Adjustment of High School Pupils with special Reference to Selected Factors in the Home Environment.* Contributions to Education, No. 705 (New York: Bureau of Publications, Teachers College, Columbia University, 1937), pp. viii + 90. $1.60.

Adjustment is a common word in the vocabulary of administrative officers and guidance functionaries. What is accomplished through the efforts of these officials to effect changes in the adjustment of school children is not so clear. The support for adjustment services rests very largely on a foundation of opinion and on individual case records. A study that undertakes to assemble objective evidence as a basis for determining the relationship between changes in the school adjustments of high-school pupils and changes in certain selected factors of the home environment should therefore be welcomed by those who recognize the importance of good home and school relations in an individual's education.

In the study under review the investigator has attempted to secure evidence which would enable him to test the common assumption that school adjustments are conditioned by home environment and that change in a home condition immediately results in a corresponding school adjustment. The data considered were secured in part from a previous investigation[1] of which the author's study is a sequel. The Symonds Adjustment Questionnaire and the Myers Intra-Family Questionnaire were administered to the pupils in the three upper grades of the Junior-Senior High School of Hastings-on-Hudson, New York. The same pupils (approximately 300) had been tested the previous year by the principal of the school in the same manner in carrying on

[1] Myers, Theodore R. *Intra-Family Relationships and Pupil Adjustment.* Contributions to Education, No. 651. New York: Bureau of Publications, Teachers College, Columbia University, 1935.

the investigation previously mentioned. The judgments of teachers were also secured regarding the changes in adjustment status of the pupils in question during the interval between the two investigations.

The changes in adjustment were appraised by two methods, namely, (1) determining the difference in the ratings of the pupils on the Symonds Adjustment Questionnaire in 1933 and 1934, and (2) ascertaining the judgment of the teachers relative to pupils' adjustments as evidenced by overt conduct or by such outward differences as the teachers had noted or at least thought they had seen. Changes in the selected factors of home environment were measured by the differences in the scores of the Myers Intra-Family Questionnaire in 1933 and 1934. The data thus obtained were supplemented with case studies of pupils selected because of marked changes in score on one or other of the questionnaires.

Statistical comparisons of the total scores on the two questionnaires and the several parts of the questionnaires supplemented with the findings of teacher judgments, case reports, and related data revealed for the most part insignificant relationships between change in school adjustment and change in selected factors in home environment. The implications of the findings are that adjustment is a slow process and that guidance officers cannot effect sudden changes in adjustment by manipulating the factors in a pupil's environment. The author concludes that it is probably "a more fruitful procedure . . . to recognize the adolescent as an individual, and to assist him in his adjustment problems by helping him to put his difficulties in the proper perspective and work out his own plans for meeting them" (p. 78).

Two other findings of some significance are: (1) that so many environmental factors are involved in any change in adjustment that to attempt to effect changes without first evaluating as many of the factors as possible is simply to lessen the chance of success by that much, and (2) that age appears to bear an important relation to change in adjustment, the over-age pupils presenting a greater problem than the under-age pupils. The evidence secured provides support for the very general belief that the building of a good home environment for the child in his early and formative years is conducive to successful future adjustments.

The findings of this investigation do not refute the assumption which the author set out to test, at least in so far as individual problem cases are concerned, but rather open up for adjustment services a field which makes both prevention and gradual, as opposed to immediate change, major objectives in guidance programs.

WILLIAM C. REAVIS
University of Chicago

BURT, CYRIL. *The Subnormal Mind* (London: Oxford University Press, 1935), pp. vii + 368. $3.75.

Lectures on subjects which "comprise a group of connected problems in social and psychological medicine—the problems of the subnormal mind" were given by Dr. Burt to the medical students in the London School of Hygiene, and have now been published as a book entitled—*The Subnormal Mind.*

The specific problems which Dr. Burt discussed are noted in the chapter titles. These are—the Normal Mind, the Mentally Deficient, the Dull or Backward, the Delinquent, the Neuroses-asthenic and Sthenic. Another chapter deals with ascertainment and incidence and in the appendix are lists of educational and intelligence tests, and a questionnaire on neurotic symptoms.

Throughout his lectures he emphasizes the importance of the study of the normal mind. His statement that "Little by little we are coming to realize that the vast majority of abnormal mental states consist simply of exaggerations of natural pecularities or impulses common to all mankind" indicates his point of view. Although Dr. Burt gave his lectures to a group of medically trained persons, his material is informally and simply presented and it is a temptation to let Dr. Burt speaks for himself. He says, "So far, the measures I have enumerated are mainly social, educational, or administrative; it remains to glance at those that are more definitely medical. There is little to be said. Curative measures are almost negligible in their results; but preventive efforts, directed to the protection of the infant before and after birth, may to some extent diminish mental, as well as physical weakness"[1] and again he says, "Education and social assistance is nearly always the more important need."[2] In the discussion of the dull or backward, he says, "Roughly speaking, serious non-attendance (at school) is about three times as common among the backward as it is among the normal. But it is evident that backwardness causes non-attendance almost as much as non-attendance causes backwardness,"[3] and again in this connection, he says, "Compulsory measures of whatever nature are to be deprecated, and indeed are becoming rare. The best way of securing attendance is for the teacher to make the curriculum so attractive for the backward child that these youngsters will actually prefer lessons to truancy,"[4] and later he adds, "Special aptitude and still more special gifts of character may do something to compensate for innate dullness."[5]

These few quotations show some of the statements with which, in a very unassuming, quiet way, Dr. Burt presents challenges to the students in both the medical and educational fields. These challenges ought to stimulate both groups to do more critical thinking.

Dr. Burt's discussion of the neuroses under the chapter titles of Asthenic and Sthenic neuroses is presented under the topics—symptoms, causation and treatment. The discussion is necessarily brief and only the items which Dr. Burt considers the more important are mentioned. The illustrative cases are well chosen and represent the types which the practicing teacher and the physician often meet rather than extreme types found in mental hospitals. Therefore, the general practitioner and the teacher will find much that is helpful in these chapters.

In the chapter on Ascertainment and Incidence, he again emphasized that "mental abnormality, . . . is generally a matter of degree,"[6] and "only prolonged experience will show where to draw the line between what is irrational and what is not."[7] There is much for the lay reader in this chapter, and for the trained worker there are many suggestive leads toward more work to be done. He says, "much is done for the physically defective child; almost as much for the dull, the mentally defective and the delinquent; but the nervous child still remains almost wholly overlooked."[8] After discussion of the rough percentages available, he says, "It will be observed that, if these figures can be trusted, the number of children suffering from serious neurotic disorder is certainly far greater

[1] p. 106
[2] p. 107
[3] p. 125
[4] pp. 125-126
[5] p. 150
[6] p. 322
[7] p. 323
[8] p. 336

than the number of mentally defective children, and possibly as great as that of the dull or backward. Could we make an intensive attack on these cases in early life, through child guidance clinics or similar means, we should, I am convinced, not only save countless individuals from definite breakdown in later life, but enormously diminish the amount of unhappiness, inefficiency and social friction that such conditions eventually engender.'"[1]

In the appendix, Dr. Burt gives a partial list of the actual tests to be used in examination of patients, and a questionnaire on neurotic symptoms. These are given merely to illustrate the method employed and not as something to be used without much more study and experience.

There is very much of value in the book for the medical and the non-medical reader. It is not an exhaustive treatise but the material is so presented as to influence the reader to carry the study further.

META ANDERSON
Binet Schools of Newark, N. J.

WHITNEY, F. L. *Elements of Research* (New York: Prentice-Hall, Inc., 1937), pp. xviii + 616. $3.50.

Whitney's new book is a revision and enlargement of his earlier work, *Methods in Educational Research* (D. Appleton-Century Co., 1931), which is now out of print. It is a treatment of the general methodology of educational research with essentially the same general purpose as Good, Barr, and Scates' considerably more comprehensive *Methodology of Educational Research* (D. Appleton-Century Co., 1936) in contrast to the great emphasis on statistical techniques in Monroe and Engelhart's *The Scientific Study of Educational Problems* (MacMillan Co., 1936).

Two introductory chapters present reasonably full discussions of the characteristics of science and research, and of the traits of scientific workers. Three chapters are concerned with a rather full treatment of setting up the problem, surveying the related literature, and of developing the agendum or detailed plan for the study. A short discussion of the collection of evidence describes some of the devices for collecting data, including observation, questionnaire, schedule, personal interview, score card, rating scale, test, and index numbers. In the reviewer's opinion these procedures in appropriate combinations might better have been discussed at greater length in in connection with the next chapter on descriptive or survey research as types of the normative-survey method, for example, observational-surveys, questionnaire-surveys, testing surveys, etc.

A series of chapters analyzes what the author considers the important methods of educational research: descriptive, historical, experimental, philosophical, prognostic, curricular, sociological, and creative. As either a logical or a functional classification of research methods this scheme leaves much to be desired in terms of consistency. If *method*, which the author correctly stresses as of major importance in research and science, is the basis for the classification, then descriptive (survey), historical, and experimental methods can justifiably be included. Philosophy is concerned chiefly with values and interpretation, which the author himself admits. "Philosophy, then, is not a basic method of research. It is a place, a level of value where reflective thinking is going on. Its separate treatment here is justified by the fact of its supreme importance" (p. 366). Prognosis is a purpose for which research is used rather than a method as such, since one may predict not only on the basis of

[1] p. 337

experimental, genetic, and correlation studies, but even on the basis of historical and survey studies. The curriculum is an area of problems for research not an investigational method, which the author also recognizes. "The claim here is not for a distinctive, basic method" (p. 423). However, why is there not just as good a claim for chapters in the research pattern on administrative research, supervisory research, etc., if areas of problems in the discussion are to be placed on the same level with basic methods such as historical, survey, and experimental procedures? Exactly the same point can be made with respect to the chapter on sociological research. Sociology in its sphere uses virtually all of the methods employed in education. If sociology is to be represented in a classification of research methods, why not a place for economic research, geographic research, etc.? It seems difficult to defend "creative" research in a classification of investigational methods. One may use research as a foundation for or as a preliminary to the production of creative work such as prose, poetry, drama, musical composition, opera, dance form, picture, statue, or building, but the function of science is to reveal truth rather than to create as does the painter or novelist. To be almost facetious, why not a chapter on and a place in the research classification for "destructive" research, including the wrecking of buildings, eradication of termites and plagues or pests, destruction through instruments of war, etc.? The point of this criticism is that in terms of consistency and clarity it seems far better to set up a basal classification of research methodology in terms of *scientific method*, and then show under each major method (historical, experimental, survey, etc.) the application in various ways: in determining values philosophically, to predict, in curriculum making, in the field of sociology, and as applied toward creative ends. This plan would permit more adequate discussion of the major methods with their several subtypes, especially in the case of the chapter on survey research where the author places survey, genetic, case, job or activity analysis, documentary-analysis, and legal-analysis procedures. Under this same "descriptive" or survey heading is a section on psychological analysis as a subtype, whereas this is a field for rather than a method of research.

Two chapters are devoted to the later steps in research-classification of materials and data (statistical procedures) and preparation of the report.

As indicated above, the reviewer's major criticism is directed toward the lack of consistency in the classification of investigational procedures and in the organization of the book, a shortcoming for which the author takes to task certain other writers in the field. "In many of the statements published, there was no distinction between basic methods, such as the historical and the experimental, and obvious tools for getting data, for example, the questionnaire and the rating scale. One such mixed analysis is given here . . . experimental, historical, psychological, case study, survey, curriculum-making, job analysis, interview, questionnaire, observation, measurement, statistical, tabular and graphic, and library techniques" (p. 233). Even though the author cautions the reader repeatedly that his classification for the discussion of research methods is inconsistent both logically and functionally, and justifies his organization by pointing to the importance of the areas or applications considered, the result cannot help but be confusing to the beginner in research and somewhat irritating to the more experi-

enced investigator. There are indications that the book was written at least a year before publication, without bringing the supporting references up to date in many sections; there are few references later than 1935. At that, the volume is heavily documented, with a local touch in the form of many illustrative studies cited from the author's own institution, Colorado State College of Education. Many of the references and illustrations are from the field of science in general, which is helpful in most instances, except where applications to the field of education are virtually missing, as in the discussion of historical research. More frequent use of appropriate topical and paragraph headings would have been useful to the reader in following the organization; possibly they would have assisted the author in the writing of the material. This is especially true of the chapter on the experimental method. In most of the chapters are check lists and score cards for evaluating the various types of research, as well as numerous exercises for application of the principles discussed. The book is more complete than the author's earlier work in the same field and no doubt will find a place in the hands of graduate students who are preparing theses or who are otherwise interested in research.

CARTER V. GOOD
University of Cincinnati

GEORGE, WILLIAM H. *The Scientist in Action: A Scientific Study of His Methods* (London: Williams and Dorgate, 1936), pp. [9] + 355. 10s 6d.

It is interesting and significant to note in England an emphasis on scientific method, paralleling similar developments in the United States, as highly desirable in the training of research workers and even for mankind in general as a means of attacking the problems of society. In the field of education and teacher training in the United States systematic instruction in scientific method is largely a product of the past fifteen years or less.

George presents his non-philosophical treatment of science with the request that the reader keep in mind the words of Faraday: "'We may be sure of facts, but our interpretation of facts we should doubt. He is the wisest' who can take 'a fact for a fact, and a supposition for a supposition, as much as possible keeping his mind free from all source of prejudice'" (p. 11). However, the author does not claim that one approach (philosophical or scientific) is more fundamental or better than another; they are merely different ways of looking at things. His chapters are grouped under the major divisions of: the scientific outlook, getting scientific facts, and arranging scientific facts. The four qualities of scientific research are listed as: (1) human action, which produces (2) facts and (3) arrangement of facts; and (4) newness. Topics of most interest to workers in education include: chance and the uniformity of nature, the eye-witness's observation, scientific observation, collecting and arranging facts in relation to a pattern or whole, laws and generalizations, and factors in and the future of experimental research.

While the author characterizes his book as non-philosophical, as compared with a recent American book in the same general area (Boyd's *Research: The Pathfinder of Science and Industry*, Appleton-Century, 1935), the present volume is much more theoretical, abstract, and technical in style, organization, terminology, and illustration. It doubtless will find a place in many libraries of this country.

CARTER V. GOOD
University of Cincinnati

DRURY, SAMUEL S. *The Care of the Pupil.* The Inglis Lecture, 1935 (Cambridge: Harvard University Press, 1935), 71 pp. $1.00.

The Rector of St. Paul's School writes charmingly and sensibly of the chief business of teaching, namely, the nourishing of the young. He likes that teacher, as who does not, who through his confident knowledge, his enthusiasm, and his ability to see pupils as individuals of various but always worthwhile possibilities succeeds in making them good citizens, lovers of beauty, religious men, and independent thinkers. Throughout the essay runs a comparison of private and public schools. Often essential similarities are pointed out, sometimes a superiority of the private school is mildly asserted and sometimes the superiority of the public school is conceded. The essay is modern in spirit, yet full of mellow experience. It deals delightfully with ideas and ideals which teachers and school authorities should never be allowed to forget.

M. H. WILLING

University of Wisconsin

PERCY, LORD EUSTACE, NUNN, SIR PERCY AND WILSON, DOVER, Editors. *The Yearbook of Education, 1935* (London, Russell Square: Evans Brothers, Ltd., 1935), 962 pp. 35s.

The fourth number of this highly serviceable educational yearbook continues, as a standard feature, the statistical and descriptive summaries of foreign educational systems; offers new and excellent surveys of education in English speaking nations; includes special sections on educational finance in the United Kingdom, the testing of intelligence, medical education, education and the social crisis, and on India; and concludes with four very useful chapters on education in Norway, Poland, Germany, and Soviet Russia. The book, as were its predecessors, is an invaluable source of well organized information about education the world over. As a vehicle for comparative educational theory and philosophy it is scarcely less important.

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RESEARCH ABSTRACTS and BIBLIOGRAPHIES

Address all communications relative to research abstracts and bibliographies to A. S. Barr, University of Wisconsin, Madison, Wisconsin.

BULLETINS

ANON. "Theses in Education," *Bulletin of the Bureau of School Service*, X (Lexington: College of Education, University of Kentucky, September, 1937), 32 pp.

This supplement, and a bulletin issued previously, together provide a complete list of all graduate theses in education presented at the University of Kentucky to January 1, 1937.

CRESSMAN, PAUL L., DIRECTOR, AND OTHERS. "The Organization and Administration of Commercial Education in Secondary Schools," *Bulletin of the Department of Public Instruction*, No. 102 (Harrisburg: Pennsylvania Department of Public Instruction, July, 1937), 107 pp.

This bulletin presents a summary of the commercial occupations in Pennsylvania; suggested questions for the guidance of teachers and others in discussing commercial changes and implications for commercial education; general trends in the employment of commercial workers; considerations in developing local commercial education programs; suggestions for developing individual courses of study; personal qualifications of commercial workers; and source materials in the field of commercial education. Bibliography of tests in commercial education.

GRIFFIN, HAROLD D. "The Nomograph as a Psychometric Device," Mimeographed (Wayne: Nebraska State Teachers College, 1937), 5 pp.

Booklet form of a paper prepared for the Psychometric session of the American Psychological Association, University of Minnesota, Minneapolis, September 2, 1937.

HAGGERTY, MELVIN E., CHR., AND OTHERS. "Studies in Higher Education," *Bulletin of the University of Minnesota*, XL (Minneapolis: University of Minnesota, April 27, 1937), 40 pp.

Report of the Committee on Educational Research for the Quadrennium, 1932-36 in which studies of the problems of examinations, administration, curriculum and instruction, and personnel are reported. Bibliographies.

HOLY, T. C. "Financial Data for Ohio Cities and Exempted Villages as of September, 1937," *Bulletin of the Bureau of Educational Research* (Columbus: Ohio State University, October, 1937), 16 pp. Mimeographed.

This report is divided into two parts: general financial items, and information on school bond issues and special levies.

HOLY, T. C. "The Extent of Financial Proposals to be Submitted by Ohio County School Districts on November

2, 1937," *Bulletin of the Bureau of Educational Research* (Columbus: Ohio State University, October, 1937), 12 pp. Mimeographed.

The financial proposals are itemized in terms of county, district, tax duplicate, enrollment, tax rate, and issues to be submitted at the November election.

LAWS, GERTRUDE. "Parent Education in California," *Department of Education Bulletin*, No. 17 (Sacramento: California State Department of Education, September, 1937), 53 pp.

The problem of parent education is discussed from the standpoints of background; objectives; suggested procedures; and public schools and parent education. Bibliography.

LINDQUIST, E. F. "The 1938 Iowa Every-Pupil Basic Skills Testing Program for Grades 6, 7 and 8," *Bulletin of the State University of Iowa*, No. 937 (Iowa City: State University of Iowa, October 23, 1937), 20 pp.

This bulletin presents the major purposes of the program; the significant features of the program; a description of the tests; and the administrative organization of the program.

MANWILLER, C. E., ASS'T. DIR., AND OTHERS. "Reading Difficulties," *Pittsburgh Schools*, XII (Pittsburgh: The Board of Public Education, September-October, 1937), 30 pp.

This bulletin presents discussion of the factors underlying reading difficulties; new instruments for diagnosing; and remedial materials in reading and arithmetic. Bibliography.

REAVIS, WILLIAM C., CHR., AND OTHERS. "School Organization," *Review of Educational Research*, VII (October, 1937), pp. 359-446.

School organization is treated with respect to territorial units; structural units; functional organization in elementary and secondary schools; the extension of educational organizations in kindergarten and nursery schools, adult education, and civilian conservation corps; organization of administration in territorial units—cities, counties, and states; and organization of administration in institutions of higher education. Bibliography.

EDUCATIONAL ADMINISTRATION AND SUPERVISION

ALTSTETTER, M. L. "The Philosophy of Education of Two Hundred Secondary Schools," *Educational Administration and Supervision*, XXIII (September, 1937), pp. 409-425.

A report on this phase of the coöperative study of secondary-school standards, in which twenty-two items, or groups of related items, were assembled from various sources and submitted to each of the two hundred schools for study, correction and agreement, when compared to the philosophy of education of each school.

BRADFORD, E. J. G. "The Relation of Intelligence to Varying Birth-Rate in Different Social Grades," *The British Journal of Educational Psychology*, VII (November, 1937), pp. 229-246.

The author presents a summary of the investigations relative to this problem, and concludes that is is probable that intelligence varies inversely as fertility within the occupational group.

CRAWFORD, C. C., AND CARMICHAEL, JACOB A. "The Value of Home Study," *Ele-*

mentary School Journal, XXXVIII (November, 1937), pp. 194-200.

The authors find no significant difference in scores on the Stanford Achievement Test in Grades V-VIII during three years with home study and three years after home study was abolished.

PARSONS, ROSA F., AND MODEROW, GERTRUDE. "The Extent and Nature of Public School Testing Programs in City School Systems," *Educational Administration and Supervision*, XXIII (September, 1937), pp. 461-472.

Data from a questionnaire designed to obtain information regarding the extent of city-wide testing programs as well as the manner of their administration and the uses made of test results as obtained from fifty-three cities is summarized.

SUTTON, D. H., AND HOLY, T. C. "The Study of Local School Units in Ohio," *Educational Research Bulletin*, XVI (Columbus: College of Education, Ohio State University, October 20, 1937), pp. 169-181.

The authors present the results of a study of local school units in Ohio and give a specific reorganization program in which recommendations are made regarding each school and school district in the hope that a more economical and efficient system of county schools will result.

WIRT, WILLIAM. "The Great Lockout in America's Citizenship Plants," *Bulletin Printed by the Students of Horace Mann School* (Gary: Horace Mann School, April, 1937), 112 pp.

This bulletin purposes to show that a desirable life at work, study, and play can actually be secured for children and adults by the wider use of the school.

METHODS OF TEACHING AND LEARNING

COLLINS, JOSEPH H., AND DOUGLASS, HARL R. "The Socio-Economic Status of the Home as a Factor in Success in the Junior High School," *Elementary School Journal*, XXXVIII (October, 1937), pp. 107-113.

The authors present the results of an investigation made of homes of one hundred and forty-six superior pupils, and those for twenty-seven pupils in the failure group. The data seems to indicate that the unfavorable home conditions under which the pupils of the failure group live are a factor of major importance in their unsatisfactory school work.

LEVELLE, J. M. "An Experiment in the Teaching of High School Chemistry," *School Science and Mathematics*, XXXVII (November, 1937), pp. 946-952.

The author presents a possible schedule for the teaching of Chemistry to Juniors and Seniors in High Schools.

NEVILL, E. MILDRED. "Brilliant Children: with Special Reference to Their Particular Difficulties," *The British Journal of Educational Psychology*, VII (November, 1937), pp. 247-258.

The author discusses this problem on the basis of data which has been gathered at the Psychological Centre for School and Home during its three and a half years' work, by presenting data from a study made in connection with seventy-eight children whose I.Q.'s range from 140-180 on the Binet test, and thirty-five of these were considered 'difficult.'

WOOD, GEORGE C. "A Study in the Establishment of a Norm in Scientific Attitudes and Abilities among Ninth-

Year Pupils," *Science Education*, XXI (October, 1937), pp. 140-146.

The scientific attitudes of honesty, good habits of work, initiative, dependability, openmindedness, and group courtesy and cooperation were studied by six teachers who made 2600 observations on 210 boys and 76 girls. No norms of a valid nature have been established, although the tendencies revealed are such that they indicate that norms may be established.

CURRICULUM

BALDWIN, BOYD F. "Broadcasting as a High-School Activity," *Bulletin of the Department of Secondary School Principles of the National Education Association*, XXI (November, 1937), pp. 27-29.

The author discusses the use of radio facilities in Montana and feels that all school officers should participate and that all students should be given the opportunity to take part in the activity of broadcasting.

COWELL, CHARLES C. "Play Behavior and Personality Analysis," *Educational Research Bulletin*, XVI (Columbus: College of Education, Ohio State University, October 20, 1937), pp. 182-186.

The specific attitudes and modes of behavior employed in the personality analysis chart, reproduced in this article, and intended to aid the student-teacher in considering and educating the 'whole' child, were selected specifically for big-muscle social-play situations, common to the physical-education program and includes physical, intellectual, emotional, dynamic and social components.

HARTMANN, GEORGE W., AND STEPHENS, DEAN T. "The Optimal Teaching Sequence for Elementary Physical Principles Based on a Composite Scale of Pleasure-Value and Difficulty of Insight," *The Journal of Educational Psychology*, XXVIII (September, 1937), pp. 414-436.

The authors present a list of one hundred forty-four principles in elementary physics. The factors considered in this selection were: appearance in the six most popular texts, difficulty of each, the relative pleasure value, and 'physics readiness.'

HARTMAN, HELEN J. "Pre-College Guidance in Ohio," *The School Review*, XLV (November, 1937), pp. 662-671.

A check-list, which included practically all existing pre-college guidance practices, was employed and the author suggests that on the basis of this data which was secured from seventy-three secondary schools in Ohio, present pre-college guidance practices need to be appraised and further experimentation should be done.

CHILD DEVELOPMENT

DOLCH, E. W., AND BLOOMSTER, MAURINE. "Phonic Readiness," *Elementary School Journal*, XXXVIII (November, 1937), pp. 201-205.

This article deals with the relation between the use of phonics and the general maturity as shown by intelligence tests in grades one and two.

MEASUREMENT, STATISTICS, AND SCIENTIFIC TECHNIQUES

GRANT, ALBERT. "A Comparison of the Metropolitan Readiness Tests and the Pintner-Cunningham Primary Mental Test," *Elementary School Journal*, XXXVIII (October, 1937), pp. 118-126.

On the basis of data secured on 3,561

Cincinnati children in the first grade, the author concludes that the Metropolitan Readiness Tests yield ratings which are highly correlated with ratings on the intelligence of such pupils based on the Pintner-Cunningham Primary Mental Test.

SISSON, E. DONALD. "Habits of Eye-Movement in Reading," *The Journal of Educational Psychology*, XXVIII (September, 1937), pp. 437-450.

This study attempts to establish the existence or non-existence of motor habits of eye-movement in reading, and the relation of such habits, if present, to the length of line, type of material read, and to level of reading ability.

MISCELLANEOUS

PUNKE, HAROLD H. "The Home and Adolescent Reading Interests," *The School Review*, XLV (October, 1937), pp. 612-620.

This article deals with the kinds of material read by high-school pupils in newspapers and current periodicals, as secured through a questionnaire covering the pupils' backgrounds and interests, in the states of Illinois and Georgia.

NEW TESTS

OTIS, ARTHUR S. "Otis Quick-Scoring Mental Ability Tests: Beta Test, for Grades 4-9; Gamma Test, for High Schools and Colleges," Yonkers-on-Hudson: World Book Company, 1937.

The Beta and Gamma Tests are revisions and extensions of the Otis Self-Administering Tests. A new quick-scoring feature has been perfected and found to be efficient and time-saving. Two forms of each test are available.

RESEARCH NEWS and COMMUNICATIONS

Address all research news and communications to Carter V. Good, Teachers College, University of Cincinnati, Cincinnati, Ohio.

Completed Doctoral Theses.—No. 4 of the series, *Doctoral Dissertations Accepted by American Universities, 1936-1937* (105 pages) has just been issued by the H. W. Wilson Co. of New York City. This is an annual list compiled for The Association of Research Libraries under the editorship of Donald B. Gilchrist. All doctoral dissertations accepted by American universities during the year, in a single list, was the objective in planning this publication, even though only about one-third of the dissertations appearing annually ever are published, either wholly o. in part. The seven main divisions of the publication are: philosophy, religion, earth sciences, biological sciences, social sciences, literature, and art. Preliminary tables provide analytical and comparative tabulations, including distribution of doctorates by universities and by subjects for the current year.

Doctoral Theses Under Way in Education.—The eighth annual list of doctoral theses under way in education will appear in the January number of the *Journal of Educational Research*. Readers of the *Journal* are urged to inform the editor concerning institutions which have initiated a doctoral program in education within the past year or two.

Yearbook on Guidance.—Part I of the 1938 Yearbook of the National Society for the Study of Education is entitled *Guidance in Educational Institutions*, prepared by a committee of the Society, composed of Grayson Kefauver, Stanford University (Chairman); Richard Allen, Providence; Margaret Bennett, Pasadena; A. H. Edgerton, University of Wisconsin; Arthur Jones, University of Pennsylvania; Franklin Keller, New York City; and Ruth Strang, Columbia University—with the assistance of Paul Diedrich, Ohio State University; Harold Hand, Stanford University; A. C. Eurich, Northwestern University; Louis Raths, Ohio State University; Francis Rosecrance, Northwestern University; and Gilbert Wrenn, University of Minnesota. This yearbook brings up to date the presentation of vocational guidance given in the Twenty-third Yearbook, Part II, 1924, and at the same time sets forth a broader and newer concept of guidance embracing school counseling, orientation of new students, personality development, the adaptation of instruction, and the transition from school to community life.

The Scientific Movement.—Part II of the 1938 Yearbook of the National Society for the Study of Education will deal with the scientific movement in education. The yearbooks of the Society since its founding about forty years ago have contributed to the scientific study of education. In fact, the word "scientific" was formerly in the name of the Society. It is appropriate, therefore, that a yearbook should now be issued which at-

tempts to sum up and evaluate the movement which the society represents. This seems particularly appropriate at the present time when the importance of the scientific approach is being challenged.

The yearbook is being prepared under the direction of the Board of Directors of the Society which in this case is acting in the capacity of a Yearbook Committee. While this procedure has no precedent, it was felt to be appropriate because of the fact that the yearbook covers the entire field of the work of the Society. Particular chapters of the yearbook are being prepared by specialists.

The yearbook is intended to present the contributions of scientific study in such a manner as to be understood by and appeal to non-technical readers, such as, teachers, administrative officers, and specialists in other subjects than education. The treatment is necessarily brief and deals with the essentials of the subject rather than with technical details. The aim is to sketch broadly the main picture.

In accordance with this aim the first section of the yearbook reviews the chief contributions which the scientific movement has made to the various areas in education. For instance, chapters deal with the contributions to surveys, administration, training of teachers, curriculum, and general methods. A series of chapters treats of the contributions of scientific studies to the various school subjects (handwriting, reading, spelling, English usage, mathematics, natural science, social science, practical arts, fine arts, and home economics). Other chapters deal with pupil progress, individualization of instruction, discipline and control, guidance, and higher education. This section presents an overview of the developments which have taken place in the various educational areas and procedures, and of the way in which this development has been influenced by exact studies.

Another section deals with the various kinds of scientific technique that have been employed in the study of education and the way in which these techniques have developed. They include general methods of investigation (historical, survey, statistical, laboratory, experimental, case, and diagnostic) and more specific techniques (testing of achievement, general intelligence, special abilities, and personality, and use of observation, and the questionnaire, and rating). Whereas the previous section indicates what has been done with the tools of research, the present one describes these tools themselves.

Another section reviews the contributions to education which have been made by the various fundamental bodies of underlying scientific knowledge (psychology of learning; individual differences, and analysis of ability, heredity, and environment; mental growth and development; mental hygiene; health, nutrition, and physical hygiene; the organization of society and social pathology; and economics).

In the final section occurs a discussion of the theoretical basis of the scientific movement, particularly the philosophical implications of science. The chapter on this subject is by John Dewey, and of course, presents the pragmatic point of view. According to this point of view there is no sharp division between science and philosophy, philosophy being merely the general interpretation of the data which are gathered by science.

The chairman of the yearbook committee is Frank N. Freeman of the University of Chicago.

Social Studies Yearbook.—The eighth Yearbook of the National Council for the Social Studies was edited by C. E. Barnes, head of the social science department of the Detroit Public Schools, under the title,

"The Contribution of Research to the Social Studies."

One chapter, written by John R. Davey and Howard C. Hill, deals with the organization of social-studies materials in units and the unit method of teaching. Fremont P. Worth discusses the problem of objectives, reviewing the research in this field. Burr W. Phillips deals with the problem of methods in teaching in so far as research has touched it. Florence R. Tryon discusses the implications of research for directing pupils' study. Arthur Dondineau and Stanley Dimond deal with the problem of correlation of the social studies with one another and with other fields. R. E. Twindler discusses the field of collateral reading, John A. Nietz that of visual aids, Wilbur F. Murra that of current events, and J. J. Wrightstone that of testing.

The yearbook is sent to members of the National Council for the Social Studies. To others the price is $2.00. The yearbook was presented at the national meeting of the Council at St. Louis on the two days following Thanksgiving, 1937.

Social Studies Materials.—The Society for Curriculum Study through its committee, the Editorial Board of *Building America*, has consummated plans for wider distribution of its illustrated instructional materials. Previously, the Society has attempted to publicize and distribute its materials through its own office. Even under the limitations of such a distribution program, the sales and use of these materials during the last two years have been beyond expectation. Under the new arrangement, a national distributor with a good sales force in the field and long experience in mail advertising guarantees to secure a much wider distribution of these illustrated text materials. This new arrangement will in no way affect the policy which has consistently dominated the preparation of these materials.

Over one hundred thousand copies of the *Building America* pictorial materials were utilized throughout American schools last year. The most typical use of these materials was in connection with high school courses in the social sciences, although each particular issue, as for example the one on health, sold in large quantities to given departments in secondary schools, in addition to being used in the social science classes. A large number of elementary schools are purchasing these materials because of the quality of their photographic studies of American life.

The Editorial Board has announced the titles of the eight issues for the year as follows: news, the farmer's problems, finding your job, labor, war and peace, how the federal government serves us, chemistry in everyday life, and seeing America.

Research Division, N. E. A.— A partial list of activities includes:

(1) Federal aid.—The September *Research Bulletin* represents a gist of the facts presented at the congressional hearings on the Harrison-Black-Fletcher Bill. Eighteen thousand copies have been published to meet the usual needs and an additional 12,000 have been ordered for special distribution.

(2) Social studies.—The November *Research Bulletin* represents an analysis of 1800 questionnaires received from classroom teachers in elementary and secondary schools. This investigation is under the immediate direction of Frank W. Hubbard, Associate Director of Research.

(3) Guidance and articulation.—Several hundred colleges and more than 1000 high schools have provided data on their practices in "bridging the gap" between

secondary and higher education. These data will be analyzed in a *Research Bulletin* under the supervision of Ivan A. Booker, Assistant Director of Research.

(4) Economic status of rural teachers.—Under the general direction of the committee in this field the Division is analyzing 10,000 returns from rural teachers on income and expenditures. This comprehensive study may shed new light upon the salaries, savings, and economic problems of teachers in rural areas. The work is under the immediate supervision of Richard R. Foster, Assistant Director of Research.

(5) Tenure.—A summary of tenure legislation passed during the recent sessions of state legislatures has been printed. On the basis of this study the 1936 "Handbook on Teacher Tenure," has been revised. About November 1, the Division started summarizing court decisions on tenure for the year 1937. This is an annual and cumulative project.

(6) Academic freedom. — During the summer workers experimented with an "opinionnaire" among summer session students at Boston University, University of Michigan, and University of California. The Division is revising the blank now in the expectation that it may be used early in 1938 in studying the opinions of both teachers and laymen.

(7) Legislation.—There is being completed a brief summary of all types of educational legislation passed by state legislatures during 1937. This material will be sent to the Division's state school legislative reference service. A revision of the summary of teacher oath requirements in the various states is ready. These two studies are typical of the ten or so made each year in this area.

The Director of the Research Division is W. G. Carr, who provided this information.

Educational Policies Commission.—The Commission has been active as follows:

Established.—November, 1935, by joint action of the Department of Superintendence and the National Education Association.

Membership.—Twelve appointed members; five *ex-officio* members (Presidents and Executive Secretaries of the National Education Association and the American Association of School Administrators; President of the Department of Classroom Teachers); two advisory members (United States Commissioner of Education and President of the American Council on Education).

Purpose.—The Commission was directed, among other things, to reconsider the purposes of education, to define the peculiar functions of the school in the social scene, and to stimulate long-term planning in education.

Finance.—A grant of $50,000 a year for five years from the General Education Board. The Commission receives from the National Education Association office space and generous staff coöperation in purchasing, accounting, printing, library service, and other matters.

Publications.—

1. The Unique Function of Education in American Democracy. $ .50. A declaration of the rights and obligations of public education.

2. A National Organization for Education. Gratis. Principles which should aid in making a more effective professional organization.

3. Research Memorandum on Education in the Depression. $1.00 from the Social Science Research Council. Plans for research which should help to safeguard school resources during the next depression.

4. A Bibliography on Education in the Depression. $ .50.

5. Freedom's Light. Out of Print.

6. Education for Democracy. Gratis. A study guide and radio program based on the "Unique Function" report.

7. Some Current Problems in American Education. Out of print.

8. Planning Educational Progress. Out of print.

9. Deliberative Committee Reports of 1935 and 1936. Gratis.

Work under way (with very tentative completion dates).—

1. Educational Structure and Administration. Preliminary report, November, 1937; final report, November, 1938.

2. Objectives of Education. Preliminary report on historical background, February, 1938; final report, June, 1938.

3. Economic Basis of Education, June, 1938.

4. Crucial Problems in the Education of Teachers, September, 1938.

5. Schools and Social Services, September, 1938.

6. The Probable Numbers, Geographic Location, and Characteristics of the School Clientele of the Future, 1939.

Promotion.—The Commission conducts and plans to continue an active program to call the reports to the attention of the profession and the public. Two nationwide radio programs based on the "Unique Function" report have been broadcast. During the past summer, conferences on the work of the Commission, attended by approximately 10,000 persons occupying positions of leadership, were held at 25 centers. The Commission has 2,200 *ex-officio* Consultants who suggest policies and help to implement reports. The Commission began on October 15 the issuance of "Educational Policy," six times a year, to develop a nationwide audience for its findings.

The Secretary of the Commission is W. G. Carr, who prepared this statement.

Yearbooks of the N. E. A.—Among the proposed yearbooks of Departments of the National Education Association are the following:

A. Department of Classroom Teachers
- 1937: The Health of Teachers
- 1938: The Teacher and Educational Research

B. Department of Elementary School Principals
- 1938: Reading Instruction and Supervision in the Elementary School

C. American Association of School Administrators
- 1938: The Education of Youth
- 1939: The Small School System
- 1940: Safety Education

D. Department of Supervisors and Directors of Instruction
- 1938: The Technics of Coöperation

Advisory Committee on Education.—Within the near future the Committee expects to make its report on Federal relationships to education. The Committee was appointed by President Roosevelt in September, 1936, to "study the existing program of Federal aid for vocational education, the relation of such training to general education and to prevailing economic and social conditions, and the extent of the need for an expanded program." Later a request was made "to give more extended consideration to the whole subject of Federal relationship to State and local conduct of education."

Brief but comprehensive studies are now well advanced with respect to the following subjects: the financing of education, educational research, educational administration as a major phase of State government, the quality of existing educational programs in the States, the new

and emergency Federal education programs, education in special Federal jurisdictions, and the social, economic, and governmental factors basic to a consideration of Federal relations to education.

Staff members directing major units of the studies include the following persons: Lloyd E. Blauch, who has been serving on the senior staff of the committee since the beginning; Doak S. Campbell, George Peabody College for Teachers; Walter D. Cocking, formerly Tennessee State Commissioner of Education; Newton Edwards, University of Chicago; Paul R. Mort, Columbia University; John Dale Russell, University of Chicago; and Payson Smith, Harvard University.

Raymond M. Hughes, Iowa State College; George A. Works, University of Chicago; and Alonzo Grace, University of Rochester, are serving the committee as general consultants and will assist in coördinating the various groups of studies. A number of other consultants have been appointed to advise on special aspects of educational problems.

The Chairman of the Committee is Floyd W. Reeves, University of Chicago.

Secondary School Standards.—Marked progress in the work of the Coöperative Study of Secondary School Standards in developing valid and stimulating standards for evaluating secondary schools in the United States resulted from a meeting of the Executive Committee of the Study which was held in September. Representatives of the six regional associations participating in the Coöperative Study spent almost a week in a careful review of the progress made since they met in May, 1936, and in formulating plans for the completion of the Study next spring.

During the past year workers in the Coöperative Study have visited and studied intensively 200 schools representing every state in the Union. Extensive data have been accumulated concerning many aspects of the work of the schools and these materials are being summarized and analyzed in the research office at Washington. Before the year is over these 200 schools will be carefully classified in terms of a wide variety of significant measures and used as a basis for the revision of criteria and for the development of scales for the evaluation of secondary schools in general.

The field and office work during the past year has cost approximately $75,000—a saving of almost $10,000 over budget estimates. The budget adopted by the Executive Committee for the current year provides for an expenditure of $57,000 for research, interpretation, and publication.

Arrangements were approved by the Committee for distribution during the year of detailed reports to the 200 coöperating schools, and for the circulation of printed reports dealing with a dozen significant phases of the work to the 7,000 schools which are members of the six regional associations. Arrangements were also approved for interpretation of the work of the Study through a series of articles in educational periodicals, addresses before national and state associations, and radio broadcasts.

Plans were adopted for publication at the close of the present year of a revision of the present tentative evaluative criteria, for a comprehensive volume reporting the results of the four-year study, for a popular summary of this research volume for extensive distribution, and for other related publications.

Plans were made for two meetings next spring of the General Committee of Twenty-One, sponsoring the Coöperative Study. One will be held at Atlantic City in February and one in March or April

to approve final revision of the evaluative criteria and to develop plans for their practical use in the constituent associations.

The Coördinator of the Study is W. C. Eells, with a central office at Washington, D. C.

North Central Standards—The North Central Association of Colleges and Secondary Schools at its 1934 meeting adopted a new accrediting procedure for higher institutions, on the recommendation of a Committee which had been studying the problem for some five years. The project for the revision of accrediting procedures had its inception in the general dissatisfaction that had become increasingly manifest with the operation of fixed, quantitative standards. These criticisms led the Association in 1929 to appoint a Committee on Revision of Standards; funds totalling $135,000 were supplied for the support of an underlying program of research, and a staff of investigators was employed.

The general plan of the investigation involved an analysis of all the information that could be considered as having any logical bearing on the quality of an institution, and the collection of this extensive body of information from a representative group of fifty-seven colleges, universities, junior colleges, and teachers colleges. By a series of independent criteria it was possible to obtain ratings of the general excellence of these institutions in the representative group. Specific items of information gathered during the course of the investigation, for example, the training of the faculty, the use made of library facilities, and the expenditure per student, could then be tested against these criteria of general excellence, and the usefulness of each item as a predictor of general institutional quality could be determined. By means of such procedures, combined with liberal use of logical judgment, it was possible to arrive at a list of some eighty characteristics which seem of importance in forming a conclusion regarding the general quality of an institution of higher education.

In the application of these results in the accrediting procedure, the status of an institution is expressed in terms of its percentile rank according to norms based on the member institutions of the Association. Graphic portrayal is made possible by the use of a pattern map, or profile chart, exhibiting the percentile rank of the institution on each of the items included in the procedure. From such information it is possible to render a sound judgment regarding the worthiness of a college for membership in the Association. The plan devised has now been in successful operation for three years.

The project for the revision of standards is now complete with the publication of a series of monographs reporting the research on which the new accrediting procedure is based. The titles of the series, which is published by the University of Chicago Press, is *The Evaluation of Higher Institutions*. The several monographs in the series are entitled as follows:

Vol. I, Principles of Accrediting Higher Institutions, by George F. Zook and M. E. Haggerty.

Vol. II, Faculty, by M. E. Haggerty.

Vol. III, The Instructional Program, by M. E. Haggerty.

Vol. IV, The Library, by Douglas Waples.

Vol. V, Student Personnel Service, by Donfred H. Gardner.

Vol. VI, Administration, by John Dale Russell and Floyd W. Reeves.

Vol. VII, Finance, by John Dale Russell and Floyd W. Reeves.

This information was provided by John Dale Russell of the University of Chicago.

Arithmetic Committee.—At the Atlantic City meeting of the National Council of Teachers of Mathematics, held February 23, 1935, R. L. Morton of Ohio University (Athens) read a paper entitled "A Proposed National Committee on Arithmetic." In that paper, he suggested a number of questions having to do with arithmetic teaching, upon which there is marked lack of agreement in point of view and in practice, and suggested that a committe was needed which would undertake to stimulate additional research; to collect, organize, and make available to the public the result of such research; and to make recommendations on mooted questions concerning which there is disagreement. These recommendations obviously were to be tentative and based upon what would seem to the members of such a committee to be sound educational theory and good educational psychology.

There was considerable evidence of interest in such a project in the next year or two after this Atlantic City meeting. Final arrangements were made at Chicago in February, 1937, for the appointment of a committee to be subsidized by the National Council of Teachers of Mathematics. Two thousand dollars have been made available for the Committee's work and assurance has been given that additional sums may be made available if needed. The committee consists of the following persons: H. E. Benz, Ohio University; E. A. Bond, State Teachers College, Bellingham, Washington; William A. Brownell, Duke University; Leo J. Brueckner, University of Minnesota; G. T. Buswell, University of Chicago; Paul R. Hanna, Stanford University; Julia Hodgson, Nashville, Tennessee; Lorena B. Stretch, Baylor University; B. A. Sueltz, State Normal Training School, Cortland, New York; C. L. Thiele, Detroit Public Schools; H. G. Wheat, West Virginia University; and R. L. Morton, Chairman, Ohio University.

The Committee held its first meeting in Detroit in connection with the conference of the National Education Association and the National Council of Teachers of Mathematics in July, 1937. At this meeting, it was decided that the Committee would first endeavor to collect and publish a statement of basic points of view and unanswered questions on arithmetic teaching. Each member of the Committee has been asked to formulate in a series of statements what are to him the basic points of view to which all persons should subscribe as to arithmetic in the elementary school. Each member is also asked to prepare a list of questions which in his opinion reflect important issues and upon which further investigation is required. A sub-committee consisting of Buswell, Thiele, and Morton is responsible for collecting, organizing, and editing this material. It is planned to issue the report in pamphlet form early in 1938. At a meeting of the Committee, to be held at Atlantic City in February, 1938, further plans will be made.

Secondary Mathematics.—The Joint Commission on the Place of Mathematics in the Secondary Schools plans to issue a preliminary partial report early in 1938. Composed of members of both the Mathematical Association of America and the National Council of Teachers of Mathematics, the Commission has been considering its problem since 1935. A grant from the General Education Board received in January, 1937, made possible a series of meetings which have led to the forthcoming preliminary report.

The Commission believes that judgments concerning the place of mathematics in the schools should be reached

by a careful consideration of general educational aims. Accordingly the report will include a discussion of relevant educational problems, followed by a set of principles useful in the construction of a broadly conceived program of general education. The report will also discuss some of the objectives of secondary education, such as the capacity to think clearly, the ability to use concepts, information, general principles, and skills, and the development of attitudes, interests, and appreciations. The contribution that mathematics makes toward the achievement of such objectives on the part of the individual, as well as the role of the subject in civilization, will be considered.

After presenting an outline of the general content of the main divisions of elementary mathematics, the report will offer criteria for the selection and organization of materials, and appraisal of pupil progress. In view of present diversity of administrative organization and pupil needs, the Commission believes it desirable to avoid narrow and rigid prescriptions. It will, however, offer some suggestions for programs for grades 7, 8, and 9, for grades 10, 11, and 12, and for the junior college.

The Commission has still to consider modifications for the suggested program, problems centering around the slow-moving and around the superior pupil, as well as the question of teacher training. It hopes that suggestions growing out of the study of the preliminary report will be helpful in its further deliberations.

K. P. Williams of Indiana University is Chairman of the Commission.

Guggenheim Fellows.—The 1935-36 report of the Guggenheim Foundation contains an interesting analysis of its Fellows. Since 1925, the Foundation has made 688 grants, totaling more than $1,400,000. Of 525 grants 360 have been for research, while 165 have been for creative work in the fine arts. More grants (53) have gone to the biological sciences, including medicine, than to any other field. At the time of their appointment 334 Fellows were holding positions in academic institutions, while 191 were free lance or unattached scholars and artists. The universities or schools from which six or more Fellows have been appointed are as follows: California, 32; Chicago, 20; Harvard, 20; Minnesota, 20; Columbia, 15; Michigan, 13; Wisconsin, 13; New York, 12; Illinois, 11; Yale, 9; Princeton, 8; Smith, 7; Stanford, 7; Texas, 7; Cincinnati, 6; and Pennsylvania, 6.

Research in English.—The National Conference on Research in English announces the following publications: (1) *Principles of Method in Elementary English Composition*, the fifth annual research bulletin, by Harry A. Greene and others. Summarizes studies in this field, together with critiques. (2) *Research Problems in Reading in the Elementary School*, a research bulletin by D. D. Durrell, with critiques by Paul McKee, William S. Gray, and Arthur I. Gates. (3) *Grading Children's Books*, a research monograph, by Carleton W. Washburne, Vivian Weedon, and Mable Vogel Morphett. (4) *A Summary of Recent Studies in Elementary School Reading*, by Emmett A. Betts. (5) *A Manual of Style in Elementary School English—Grades 4-6, Inclusive:* A Handbook of Good English for Grade School Boys and Girls, by Robert C. Pooley, Delia E. Kibbe, and Lou LaBrant.

Orders for the bulletins may be placed with the Conference Secretary, C. C. Certain, Box 67, North End Station, Detroit, Michigan.

The Adolescent in New Zealand.—The New Zealand Council for Educational Research has published as No. 1 in its series, Studies in Education, a 28-page paper entitled, *The Education of the Adolescent in New Zealand,* by C. E. Beeby. He concludes that a system of post-primary education which caters to at least 55 percent of the population should be totally different in aims, methods, and curricula from a system devised for a handful of the elect.

The strictly research studies of the Council are published in an Educational Research Series.

Special Edition of Psychological Journals.—After the regular library edition has been printed, the Journal Press of Provincetown, Mass., will print a special Teachers' and Students' Edition of each of the five psychological journals edited by Carl Murchison. This edition can be sent to individual psychologists for a small fraction of the cost of the regular library edition. In consideration of certain conditions, this special edition of all five of the journals will be sent to individual psychologists for the year 1938 for a total price of $10 (foreign, $15).

Iowa Testing Program.—Past experience in educational testing has demonstrated that many of the materials and services essential to the adequate appraisal of pupil and school achievement can be obtained only through coöperative organization of a large number of schools. The Iowa Every-Pupil Testing Program is an arrangement whereby the schools of the state can secure the advantages of coöperative wide-scale testing under uniform conditions, and whereby they may make most effective use of the technical facilities, equipment, and trained personnel of their state university in the preparation of the test materials and in the provision of the statistical services needed. The project is sponsored annually by the College of Education and the Extension Division of the State University of Iowa, and is conducted by the university on a strictly non-profit basis as an educational service agency.

The Iowa Every-Pupil Testing Program as a whole consists of two separate projects. One of these, the Basic Skills Testing Program, is conducted at the sixth, seventh, and eighth grade levels near the end of January each year. The other, the High School Testing Program, is annually conducted in grades nine to twelve during the second week in May. A recent bulletin is concerned with the first of these programs for 1938.

E. F. Lindquist is in charge of the testing programs.

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